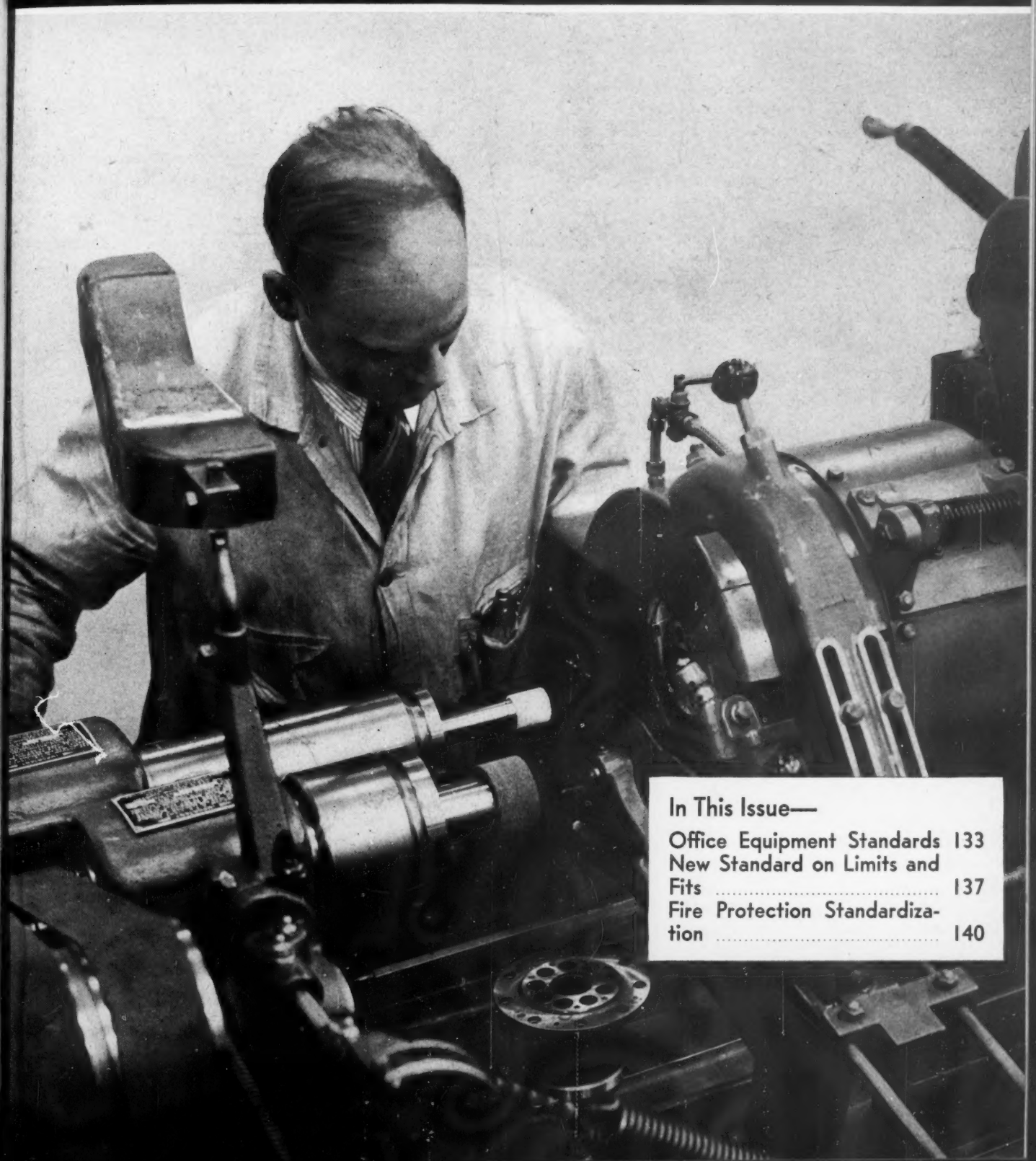
Industrial

June 1947

Standardization



In This Issue—

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Some 2000 industrial concerns hold membership either directly or by group arrangement through their respective trade associations

What Is the ASA?

THE ASA is a coordinating agency. It is a piece of machinery which operates to bring national organizations together so that their standards, their technical knowledge, their ideas and experiences can be correlated and coordinated to the end that a consistent set of standards subscribed to by all substantially interested groups may be developed, approved, and designated as "American Standard."

The ASA is not a technical society, or a trade association. It is not just another organization in the field of developing standards. It is an agency through which standards developed by any organization can be approved and designated "American Standard." It is an agency which stimulates other organizations to develop standards and it is an agency which creates organizations and committees to do standardization work when no such organizations or committees exist. Its rules of procedure and basic policies provide the motive power for the operation of this machinery so that the standards of technical societies, trade associations, consumer organizations, governmental agencies, committees, or other organizations and the standards of organizations and committees created by ASA procedure can be approved and designated "American Standard."

This designation "American Standard" has a special significance. It is the highest designation which can be given to a standard. This is so because it symbolizes the fact that all parties at interest have had an opportunity to participate in the development of the standard; that all parties have had their day in court; and that the standard has been approved not only by the organization which created it but also by other organizations which have a real interest in the subject matter of the standard.

Adapted from a statement by the Subcommittee on Expediting Work of the ASA Advisory Committee on Ultimate Consumer Goods.

Our Front Cover

Bore grinding and facing operation on internal grinding machine (see page 137). Courtesy The Heald Machine Company.

Industrial Standardization

Vol. 18 No. 6

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In This Issue

June 1947 Ruth E. Mason, Editor 35 Cents

ASA
Reg. U. S. Pat. Off.

The American Standards Association is a federation of national groups dealing with standardization. Through it, government, industry, labor, and the consumer work together to develop mutually satisfactory national standards. It acts as the authoritative channel for international cooperation in standardization work.

Subscription price $4.00 per year (foreign $5.00). Special to schools and libraries $2.00 (foreign $3.00). Re-entered at 2nd Class Matter 7/31/43, at the Post Office, New York, N. Y., Act of March 3, 1879.

Standard Oil Co (N. J.)

Office equipment, forms, papers, supplies, and business machines will be studied in the new ASA project to formulate national standards for better office operation.

First Steps Taken to Produce Greater Office Efficiency

Standards

THE authorization to begin inital studies on office equipment; paper; forms, records, and procedures; office supplies; and business machines through the establishment of five general committees with technical subgroups is one of the first accomplishments of the newly created project on office standards. From more than 25,000 items of office equipment and supplies considered to be subjects for standardization work, five immediate projects were selected. Included are erasers; attachments of typewriters to desks; nomenclature, classification, and definitions of business machines; scope and nomenclature pertaining to forms, records, and procedures; and classifying of papers used in the office. In addition, the office equipment (furniture) subcommittee appointed two subgroups —one on wooden desks, and another on steel desks—to work toward dimensional standardization.

One of the largest projects ever to be undertaken by the American Standards Association, this group was officially launched on May 6 when representatives interested in office problems met for the first time as an organized committee to undertake the study and formulation of national office equipment standards.

More than 85 delegates reflecting the views of 35 national trade associations, technical societies, and government agencies, participated in the work which is being sponsored by the National Office Management Association.

Robert E. Shull, Socony Vacuum Oil Company, representing NOMA, will serve as chairman of this committee which will tackle the job of developing a national voluntary standards program for office equipment, supplies, and procedure. For the first time, those engaged in office work or in the numerous interrelated phases which go into the operation and management of an efficient office, will have the opportunity of assisting in the adoption of standards for sizes, types, and qualities mutually acceptable to the producer, the distributor, and the consumer.

The marked success of this first formal meeting should more than justify the hopes of those who believed in the possibilities of obtaining industrial cooperation in planning for national office standards. Particularly concerned with the results is the National Office Management Association which has had as one of its objectives, for more than 28 years, this creation of standards. It was NOMA which, in 1946, attempted to plan its own standardization program along these lines. When its problems began to involve interests beyond the strictly office management field, NOMA realized that the scope of its standardization activity must be considerably broadened. This

As a start in the first national voluntary standards program for office equipment, five general committees were established. They will develop standards in the fields of:

office equipment—A. R. Hutchinson, Western Electric Company, representing the Telephone Group, *chairman;*

forms, records, and procedures—John F. Pierce, management consultant, representing the National Office Management Association, *chairman;*

office papers—Robert Hano, Philip Hano Company, representing Business Forms Institute, *chairman;*

office supplies—H. B. Holmes, Columbia Ribbon and Carbon Manufacturing Company, representing National Stationers Association, *acting chairman;* and

business machines—George Vanderbilt, Standard Oil Company of Ohio, representing National Office Management Association, *chairman.*

Immediate studies will be made on these subjects:

erasers—Charles W. Lukens, Yeo and Lukens Company, representing National Stationers Association, *chairman;*

attachments of typewriters to desks—W. R. Leahy, Victor Adding Machine Company, representing Office Equipment Manufacturers Institute, *chairman;*

nomenclature, classifications, and definitions of business machines—Eric G. Stewart, U. S. Bureau of the Budget, *chairman;*

scope and nomenclature pertaining to forms, records, and procedures—Harold A. Finley, Metropolitan Life Insurance Company, representing Life Office Management Association, *chairman;*

classification of papers used in the office—B. B. Klopfer, Standard Register Company, representing National Office Management Association, *chairman;* and

office equipment (furniture):

wooden desks and tables—W. E. Tarr, Studebaker Corporation, representing American Management Association, *chairman;*

steel desks—Hugh L. Smith, Yawman and Erbe Manufacturing Company, representing Office Equipment Manufacturers Institute, *chairman.*

Modern Industry

This semicircular arrangement of forms, postage, tax charts, etc, is an example of one system for simplifying the process of billing. The stapling machine attached to the board is a timesaver since it cannot get lost.

culminated in a formal request by the NOMA Board of Directors to the ASA for the initiation of a broad cooperative standardization effort under the auspices of that organization.

As a result, the first general conference on this subject was called by the ASA in August of last year. Some 30 organizations that were presumed to have a direct interest in office standards were invited to attend. It was obvious from that meeting that the problem was not to develop an interest in standards but, rather, to hold the scope of the project in check so that the committee's energies might be concentrated in those fields where maximum benefits could be derived.

This need for standards in different phases of office activity is well recognized throughout the business world today. Record keeping for control purposes is now a major function of the office and any standards which will improve efficiency while, at the same time, cutting down costs, have become a necessity to business. The war period, particularly, emphasized the advantages of office standardization. For example, government agencies have reported the difficulties experienced in transferring personnel from one department to another due to lack of standard keyboard arrangements. Present retraining requirements could be largely eliminated through such standardization. The Bureau of Federal Supply has pointed out the difficulties involved in purchasing electrically operated machines where no standard lengths of electrical cord are supplied.

The biggest immediate problem is the fact that such national standards are nonexistent. This is a relatively untouched field for development with much room for experimentation by trial and error.

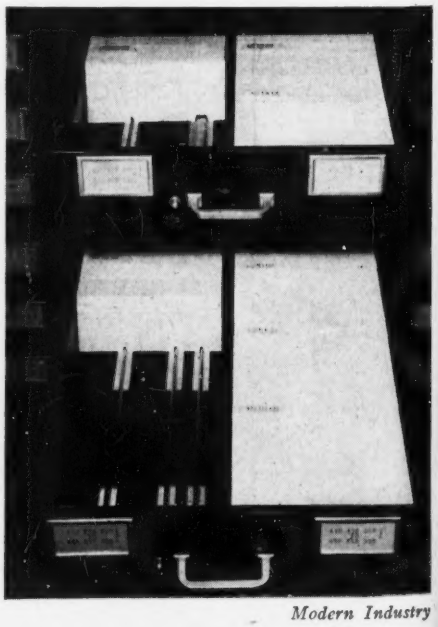
Committee Is Responsible for Technical Content of Standard

Responsibility for the technical content of the completed standard will rest with the committee. The ASA gives its approval to standards submitted for designation as American Standards only on the basis of whether or not they have been formulated according to ASA procedure. Since the American Standards Association is not a standards-writing body but a piece of machinery which brings together in an organized manner those groups which have agreed to cooperate in developing standards, the selection of representative members is most important to the success of the project. Producers, distributors, and consumers must be considered. It is this principle of consensus or practical unanimity which has accorded American Standards such wide recognition.

In fulfilling its obligations as sponsor in organizing the committee to carry out this project, NOMA recognized that the number having an interest in office problems is practically unlimited. To have all of them represented on either the ASA sectional committee or subcommittees would be impractical. Accordingly, the qualifying activities for participation were limited to those defined below:

(*a*) those in which office functions represent major or sole activity;
(*b*) those who manufacture or deal in products used in the office;
(*c*) those whose office products reach the general public in sizable quantities; and
(*d*) those whose professional function has a direct application to the office.

ASA procedure generally requires that sectional committees be both representative and in balance. Exhaustive study has demonstrated that this is impractical in the case of the office standards project even within the limitations established by the activities described above, due to the extreme breadth and varying degrees of in-



Modern Industry

One manufacturer provides mechanical filing aids with metal runners.

terest represented by the various organizations. Therefore, it has been agreed to create a sectional committee representative of the broad general interests and to build up the subcommittees in such a way as to give them a balanced representation of all basic interests.

Under each of the subcommittees there will be many subgroups dealing with the strictly technical aspects of the project. As these groups need not be balanced or representative, highly qualified, competent technical personnel will be sought for participation in the project. They will collect and study standards information and prepare drafts for consideration by the subcommittees. The membership of these groups is not limited to subcommittee members or to association members.

Internationally, this program is equally important. Liaison has already been established with the Canadian Standards Association, and Mexico has been invited to participate, too. It is hoped that eventually other national standards bodies will also take part in the program.

The scope, as finally approved, provided for the inclusion of dimensions, quality, performance characteristics, methods of testing, and nomenclature for office equipment, such as, desks, chairs, tables, safes, files, cabinets, etc; for paper used in the office, including bristols, bonds, ledgers, and folder stocks; for forms, records, and procedures; for office supplies, such as, pencils, binders, erasers, staplers, etc; and for business machines, such as, adding, calculating, dictating, duplicating machines, typewriters, etc.

It is difficult to say at this time with what controversial problems the committee may have to cope. One of the first tasks undoubtedly will be the development of standard terminology so that all interested parties will be talking the same language.

Another difficulty will be in the overlapping of certain items which may come under the scope of more than one subcommittee or subgroup. As an attempt at solving that problem, five coordinators have been appointed to serve as ex officio members of the subcommittee. These coordinators will comprise a committee on jurisdiction and will act as liaison for the sectional committee. In some instances where the work of other subcommittees may have to be considered in the study of a particular item, amalgamation of several of these groups may also be necessary.

In any event, these problems will be worked out as activity in the committee progresses. A start toward standardization must be made somewhere and this newly organized committee has made more than an adequate beginning.

Numbers for Use in Item Identification

By P. G. Agnew

This discussion of some of the principles and problems involved in the use of numbers for the identification of products is from an article by P. G. Agnew, vice-president and secretary of the American Standards Association, published in the April 1947 issue of "Railway Purchases and Stores." The article is entitled "The Importance of Round Numbers" and in addition to a general discussion of why people prefer to use certain numbers rather than others, it contains a section on the preferred numbers series, on the metric and English systems of weights and measures, and on the American Standard for "rounding off" numerical values. Recent discussions of a proposed numbering system for the identification of ball and roller bearings make this statement abstracted from the article particularly timely.

NUMBERS are frequently used to identify objects. Men have been doing so since remote antiquity, but this use of numbers is still increasing—and at an accelerated pace.

In simple situations, we say Fire Engine No. 7—Room 86—Drawer 12—File No. 35. But with the ever-increasing complexity of industry, simple numbers no longer suffice, and when the number of objects to be identified is very great, huge numbers have to be used in order to identify each item.

For many years manufacturers and distributors have been using "catalog numbers" to identify products which they offer for sale in their catalogs. Each number represents an object, which may be a bolt, a nut, a rivet, a repair part, or it may represent a complete instrument, tool, motor, or the like. In each case the number may be used in ordering without the full name of the item, or a description of it.

There are many other departments of a manufacturing company in which it is a great convenience to use item identification numbers; for example, in purchase orders, or for blueprints in the engineering department. It has often happened that two or three or more departments of a company have adopted entirely different series of numbers for item identification. This inevitably leads to confusion or waste—the wrong item ordered, or put into production, or shipped to a customer—or the duplication or near-duplication of parts. One company, in making a survey of its production and use of cylindrical pins, found that it was not only making an entirely unnecessary number of pins, but there were quite a few cases of complete dupli-

cation. In one case they had designed the identical pin six different times, and it was continuing to be made and stocked under six different identification numbers.

Such operating difficulties have led some companies to undertake company-wide standardization of numbers to be used in identifying the items which they buy, produce, use, or sell. Naturally, very large numbers are required to cover all of the items handled by a fair-sized company. Some railroads carry as many as 100,000 items in stock, or even more. A large drug store may carry as many as 50,000 items; department stores from 100,000 to 500,000.

When such a company-wide system is once set up, it lends itself to many important uses, such as stock control, piece tags, blueprints, sales catalogs, bin markings, purchase orders, etc. It also lends itself to the use of statistical punch card machines for such basic purposes as the control of stocks.

Some cases have arisen in which the use of different numbers by different companies for identical items has led to extremely complicated and confusing situations. For example, several ball bearing manufacturers produce many sizes of ball bearings which have dimensions identical as between the manufacturers. Each of these companies may use a different identification number for the same item. But the complication does not stop here. The bearings are component parts which are used by manufacturers of automobiles, trucks, motors, and various other kinds of machinery. Each of these end product manufacturers sometimes uses his own designating number for the same bearing. Cases are said to have arisen where there are as many as 200 numbers used commercially for the same bearing.

Standard Series of Numbers Set Up for an Entire Field

This situation has led to the idea of a standard series of identification numbers for an entire field. Such a system of numbers has been worked out and is in commercial use for rivets used in brake linings, all of the rivet manufacturers using the same number for the same item.

In its work for the Army and Navy on specifications for component parts for radio and radar, the American Standards Association included an identifying number for each item. These were used by the component manufacturers, the set manufacturers, and by Army and Navy. This arrangement led to great simplification in the supply problem, both in industry and in the services. It eliminates thousands of items, including many duplications. It enabled Army and Navy to pool supplies, greatly simplifying the problem of spare parts. In most of the war standards developed by ASA, the principle was used, and the principle has been carried over to the use of Joint Army-Navy specifications ("JAN" specifications).

Army, Navy Adopt Unified System

The U. S. Navy has worked out and has adopted, jointly with the U. S. Army, a proposed unified system of numbers for ball bearings which covers the requirements of the two services. They have requested the American Standards Association to bring about a unified system of numbers for ball bearings for all uses, industrial as well as governmental, and have offered their work as a contribution to this end. The great advantages of such a unification to Army and Navy are obvious, since it would permit them to pool their repair parts and supplies. Likewise, the various industries concerned would reap important economic advantages. It would greatly simplify the problem of supplies and extra bearings for repairs for Army, Navy, and industry.

The Bureau of the Budget, through the U. S. Standard Commodity Catalog Board, is making a study of the question of single coordinated series of item identification numbers for all government purchases. It has been estimated that possibly as many as three million numbers would be required to cover the vast number of products, supplies, and repair parts purchased by the Federal Government. For such a program very large numbers would be required, running to a dozen or more digits for the identification numbers. In order to make it easier for people to work with these numbers and to minimize mistakes, some companies intersperse letters, just as the telephone companies do on dial telephones. Others stick to the numerals for the sake of greater simplicity in using tabulating machines.

It has been pointed out that there is a strong trend toward using item identification numbers on a continually broadening scale, from systems limited to one department of a company—then company-wide systems—then industry-wide systems—and now the idea of a system to cover all government purchases.

Single Comprehensive System for Industry and Government Proposed

This has led some people to put forward the idea that there should be a single comprehensive system applicable to industry and government generally. This would, of course, be a very great undertaking, but, should it prove feasible of accomplishment, would have a great many advantages in simplifying many operations throughout industry.

The best systems of item identification include a carefully selected name for each item, together with a brief description of the item. These three features, the number, the name, and the description, together constitute an elementary standard.

Such systems are introducing very great economies into industrial operations.

New Members On Standards Council

The following changes have been made in the personnel of the Standards Council, highest authority of the American Standards Association in its technical work:

Institute of Radio Engineers—

A. B. Chamberlain, Columbia Broadcasting Company, replacing Raymond F. Guy as alternate for Dr A. N. Goldsmith.

U. S. Department of Labor—

William L. Connolly, succeeding the late Verne A. Zimmer as representative for a term ending December 31, 1949.

New Consumers Association Organizes

The formation of a National Association of Consumers has been officially announced by its first chairman, Helen Hall, director of the Henry Street Settlement. Among its many objectives, the NAC announces, will be to stimulate activities designed to encourage business practices of benefit to consumers, such as truthful advertising, grade labeling, guarantees, fair prices, quality merchandise, good labor standards, and to discourage business practices that are detrimental to consumer interest.

Pratt and Whitney

Approved by ASA

THE ASA has approved the American Standard, Limits and Fits for Engineering and Manufacturing, B4.1-1947, submitted as Part I of a revision of the Tentative American Standard, Tolerances, Allowances and Gages for Metal Fits, B4a-1925.

The new standard contains six sections under the following titles: Scope and Application; Definitions; Preferred Basic Sizes; Acceptance of Parts; Tolerances and Allowances; and Basic Hole and Basic Shaft Systems. The recommendations made in this standard apply particularly to cylindrical parts, briefly designated as "holes" and "shafts." However, the data may be applied also to fits between mating parts other than cylindrical, such as a shafting key and the keyway in a shaft or hub.

The section on Definitions deals with various concepts of size (nominal, basic, design, and actual size) limits, tolerances, fit (including the terms clearance, interference, and transition fit), allowance, and basic hole and basic shaft system. It also defines the concept "unilateral tolerance system" and states that this system is used as the basis for the present standard, as it was in Tentative American Standard B4a-1925.

The new American Standard, Limits and Fits for Engineering and Manufacturing, B4.1-1947, was developed by a sectional committee organized under the procedure of the American Standards Association and sponsored by the American Society of Mechanical Engineers. This standard is available from the American Standards Association for 30 cents.

The section on Preferred Basic Sizes is a new addition. It recommends that in specifying fits between mating parts in sizes from 0.0100 to 4 in., inclusive, the designer choose one of 46 values listed in Table 1 of the standard. In so doing, he will keep to a minimum the variety of tools and gages for finishing to size and inspecting those component parts of the company's product which are to be assembled with specified cylindrical fits. As has been shown in practice, if no table of preferred basic sizes is adopted, a designer is likely to adopt diameters differing sometimes only by a few thousandths of an inch. This diversity increases still more where a number of designers working independently are involved. As a result, one large company reported that it has on its drawings about eight hundred basic hole sizes up to $1\frac{1}{2}$ in. The new American Standard covers the range

up to 1½ in., inclusive, by only 30 sizes. Diameters larger than 4 in. are taken to be usually adopted on the basis of engineering considerations. Therefore, no preferred sizes above 4 in. are given in the new American Standard B4.1-1947.

The section on Acceptance of Parts reaffirms the principle laid down in B4a-1925 to the effect that, to be acceptable, parts must have a size not exceeding the limits specified on the drawing. Accordingly, variations in the size of the gages used for inspecting the parts shall not be such as to have the gages accept parts whose sizes are outside the specified limits.

The section on Tolerances and Allowances contains a table of 25 values ranging from 0.0001 to 0.0300 in. The designer is asked to choose his tolerances and allowances from the table, giving preference to eight preferred values, as follows: 0.0002, 0.0005, 0.0010, 0.0020, 0.0050, 0.0100, 0.0200, and 0.0300 in.

Basic Hole and Basic Shaft Systems. The new standard recognizes that a fit may be specified either in the basic hole system or the basic shaft system. A basic hole system is defined as a system of fits "in which the minimum limit of each hole size is basic" and a basic shaft system as one "in which the maximum limit of each shaft is basic." The standard further states that the question as to whether a fit shall be specified in the basic hole system or the basic shaft system "must be made after due consideration of a number of factors concerning the design of the product to which the part belongs and the methods by which the part is to be manufactured." In other words, this is a matter to be decided by the designer.

Work of ASA War Committee. The new standard is largely based on the final report of the ASA War Committee on Cylindrical Fits, appointed in 1943, which was under the chairmanship of John E. Lovely, vice-president and chief engineer, Jones & Lamson Machine Company. Mr Lovely is also Chairman of Sectional Committee B4. This committee drafted a proposal on Cylindrical Fits (June 23, 1944) which was sent out to a canvass of industry. It was submitted also to the British Standards Institution (BSI) and the Canadian Standards Association (CSA). The BSI submitted a proposal to supplement the draft of the proposed American War Standard, which among other things included tables of fits, each fit being specified in terms of the four limits of the mating parts. A combined American-British proposal, containing such tables, was approved by the ASA War Committee under the title, Limits and Fits for Engineering and Manufacturing (August 31, 1945). The ASA War Committee referred this proposal as its final report to Sectional Committee B4 as a basis for its further work, and then disbanded. (NOTE: A limited number of copies of the final report of the ASA War Committee are still available, upon request, from the ASA.)

The new American Standard B4.1-1947 was completed by a subcommittee on Tolerances and Allowances for Cylindrical Parts and Limit Gages, of which C. F. McElwain of International Business Machines Corporation, is chairman, and W. H. Gourlie, Sheffield Corporation, secretary. Agreement on the contents of this standard was reached in a joint meeting of American, British, and Canadian delegates, held in New York, October 1945.

Since tables of fits were given in American Standard B4a-1925 for the guidance of the designer and proposed in the final report of the ASA War Committee, the subcommittee considered the question whether such tables should be added to the new standard. It was decided that this should not be done. In this respect, the Preface to the new standard, after having referred to the data contained in it, states: "Other factors may be of major importance in engineering a fit for a particular problem. Length of engagement, bearing load, speed, lubrication, surface finish, materials, etc, must frequently be taken into consideration. The importance of each in diversified applications and industries is being studied with the thought of resolving current practices into a series of standard recommendations. Results of this study will be the basis for Part II of this standard."

"Willing-to-Certify" Plan Sponsored By National Bureau of Standards

The editors of INDUSTRIAL STANDARDIZATION regret that an error was made in the article "Interest in Standards Grows as Basis for Increasing Sales" (page 62, March 1947). The error occurred in a paragraph stating that Willis S. MacLeod, Deputy Director, Standards Branch, Bureau of Federal Supply, "described the 'willing-to-certify' plan of the Federal Specifications Board" during the panel discussion on consumer standards sponsored by the Long Island Chemists Association, January 17.

As most of our readers know, the willing-to-certify plan was developed and sponsored by the National Bureau of Standards of the U. S. Department of Commerce, not by the Federal Specifications Board. Under this plan the National Bureau of Standards compiles and distributes lists of firms which supply commodities covered by selected Federal Specifications and which have indicated their willingness to certify to purchasers, upon request, that their products meet the requirements of the standard.

The plan is completely voluntary, as Mr MacLeod pointed out in his discussion. However, once a manufacturer has indicated his willingness to certify and has been so recorded, any violation of the specifications or standards to which he has certified his product is subject for action by the Federal Trade Commission. This serves as a protection for a manufacturer who conscientiously complies with the specification against a manufacturer who might use the certification plan unscrupulously.

The Federal Specifications Board has the responsibility for development of the Federal Specifications used by the Government in purchasing material and equipment. The Board does not participate in the development or administration of the willing-to-certify plan except in the sense that Federal Specifications are used in implementing the plan.

Mr MacLeod's discussion of the willing-to-certify plan was part of his general discussion on the Government's position in connection with certification as it involves the Government both as a consumer and as protector of the general welfare. In this connection he discussed actions of the Federal Government dealing with standards and certification, the Government's position on certification, and the American Standard Practice for Certification Procedures.

Will Organize Study Group on *Frozen Food* Packages

PLANS for what ultimately may be a nation-wide standards program for the frozen foods packaging industry were gotten under way at a meeting in New York on May 13 under the auspices of the American Standards Association. Cyril Ainsworth, technical director of the ASA, was chairman of the meeting.

Twenty-two representatives from eight trade and technical associations, two government bodies, and fourteen companies asked the Association to appoint a smaller study group with additional representation from frozen food packers to lay out a broad program of possible standards work in the industry.

Many problems confront any group which undertakes to consider the feasibility of standardizing frozen food packages. Particularly important is the fact that the right package and the right packaging method are still being developed. Also, there is more than one recognized process of freezing, each of which yields a different volume of weight per package. Added to this is the fact that the industry has expanded to include a wide variety of products. Until these problems are solved, it would be difficult to adapt a package to any standard size, some of the groups declared.

The industry is composed of many interlocking interests apart from the actual processors and packers, all of which must be considered in any discussions on this subject. For example, the Army is interested in a standard unit in order to figure warehouse and shipping space; groups concerned with weights and measures are interested in the weight content of a package; transportation and warehousing groups have a problem in the size of refrigerating units; and packaging machinery and paper interests are also affected by any decisions made in the size of a package.

Therefore, the scope of the smaller working committee, which will be appointed shortly by Mr Ainsworth, has been made broad enough to allow consideration not only of frozen food package sizes, but also of their materials, operating characteristics, and the like.

Because of the complexity of this situation, too, the industry group in-

Good Packaging Magazine

Representatives of packaging machinery and paper, transportation and warehousing, weights and measures groups, and the frozen foods industry are considering standards for frozen food packages.

formed the ASA the American frozen foods packaging group did not yet appear ready to undertake an international standardization project.

Such a project had been suggested for international action by the Norwegian national standards body. Their proposal covers the international standardization of the sizes of packages of frozen foods in relation to the storage of such foods in storage cabinets, lockers, refrigerators, display cases, and other similar equipment. One of the primary purposes of the ASA meeting was to secure the advice of American interests, so that this country's point of view could be reflected adequately at the Zurich meeting by the American delegate.

The important trade groups represented at the meeting included: Packaging Machinery Manufacturers Institute, Frozen Food Foundation, Inc, Packaging Institute, Frozen Food Committee of the National Food Brokers Association, Frozen Food Institute, Inc, Refrigeration Equipment Manufacturers Association, American Hotel Association, and the American Society of Refrigerating Engineers.

Representatives whose company affiliations included the following were present at the meeting: Package Machinery Company, Continental Can Company, Riegel Paper Corporation, Pratts Frozen Foods, Inc, Van R. H. Greene, Specialty Paper and Board Affiliates, Fibreboard Products, Inc, Ashenfelter and Morrow, Inc, American Can Company, New Jersey Machine Corporation, Cecil Boling Company, Food Consultant Service, Reol Company, and the Bridgford Company.

The Quartermaster Corps of the War Department and the National Bureau of Standards for the U. S. Department of Commerce represented government interests.

Dana D. Barnum

Dana D. Barnum, 74, president of the American Standards Association during 1936-1938, died suddenly at his home in Washington, D. C., on March 19.

Mr Barnum had been president of the Boston Consolidated Gas Company for 20 years and was also a past president of the American Gas Association and the Guild of Gas Managers of New England. At the time of his death he was a member of the Contract Settlement Board of the War Department.

Standardization In Fire Protection

By Curtis W. Pierce

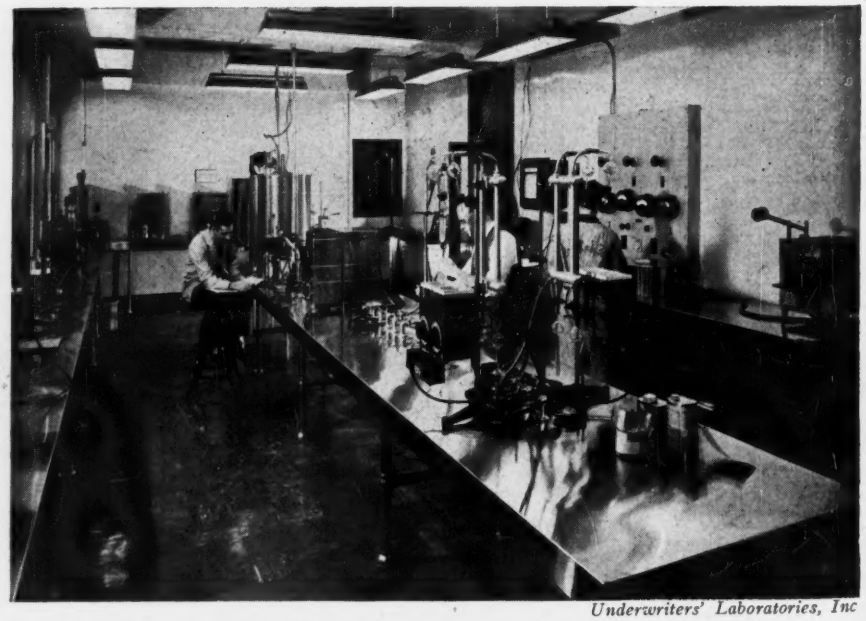
Standardization is shown here to be the basis for effective work in preventing loss from fire. Voluntary standards, agreed upon by national associations, and coordinated through the American Standards Association, are tools for cutting fire costs.

THE average person probably gives little thought to the importance of standards as they affect his every-day living but, without them, what might be some of our difficulties? In moving from one place to another, one might find that many of his household electrical appliances would be of little use because of differences in voltage and frequency or, perhaps, because the attachment plugs would not fit the plug outlets! Even though one did not change his residence, he might find that, to renew his oil burner or parts of the plumbing or heating system, it would be necessary to go to unreasonable expense in revamping his system or in the purchase of extra equipment to make the new installation adaptable to his existing equipment.

More serious would be the occasion when a fire, involving the necessity of calling out-of-town apparatus, might burn on freely because the out-of-town equipment could not connect with hydrants and hose of the local public water and fire departments.

Fortunately, these serious complications are being eliminated because of standards that have been set up to govern the design, manufacture, and installation of equipment.

The advanced development of fire protection and fire prevention could not have been effected except through



Underwriters' Laboratories, Inc

Fire hazard characteristics of liquids for cleaning and other purposes are determined in this laboratory and classified by Underwriters' Laboratories, Inc.

the extensive use of standards. The importance of standardization in fire protection is well exemplified by the fact that it was a recognized need for the development of national standards for installation of automatic sprinklers and other kinds of industrial fire-extinguishing equipment which brought about the organization of the National Fire Protection Association. By mustering the talents of authorities on the subject, the NFPA was instrumental in developing standards governing automatic sprinkler equipment to the point that installations of this type of protection have shown an over-all fire-fighting efficiency of better than 96 percent in the extinguishment and control of fires for the past half century. Since 1896, NFPA fire protection standards have constantly been expanded in number and scope to keep pace with industrial developments, new processes and materials introducing new fire hazards, and new forms of extinguishing equipment. These standards, developed by 50 standards-making committees of the NFPA, have had a major influence upon improved fire safety.

Under a policy adopted some years ago, some of the NFPA committees responsible for standards of special national significance have been organized under the procedure of the American Standards Association, and standards developed by these committees are submitted to the ASA for approval as American Standards. Among the standards handled in this way are the important series for the prevention of dust explosions, the widely used National Electrical Code, and the Building Exits Code, to mention only a few. This policy of cooperation through the ASA is similar to the practice of other associations which develop standards relating to fire protection.

Standards Cover Installation, Sizes Of Equipment, Maintenance Procedures

Standardization in the field of fire protection may be divided into three general groups, including standards having to do with the installation of equipment, those dealing with sizes and interchangeability of equipment, and those covering testing and maintenance procedures. These standards, covering widely varying topics, necessarily differ considerably in their scope and method of application. Throughout the entire development of fire protection in the field of standardization an effort has been consistently made by all those concerned to avoid standards which might serve to freeze existing practices and retard progress. The modern tendency has been to phrase standards as far as practicable in terms of performance, thus leaving the way open to new developments. The NFPA Regulations on Technical Committee Procedure specify that "Committees should, as far as practicable, prepare standards in terms of required performance, avoiding specifications of materials, devices or methods so phrased as to preclude obtaining the desired results by other means."

Many of the standards in current use in fire protection might be described as natural standards, having developed as a result of experience over a long period of years through custom and usage rather than by specific actions of standards-making committees. Typical examples are the use of the 2½-inch size of fire hose by public fire departments and the 2½-gallon size of soda-acid extinguishers. These sizes apparently were adopted by common consent long before the existence of any standardization organizations in this field.

The Baltimore conflagration of 1904, when fire hose brought from other cities could not be connected to Baltimore hydrants, furnished a forceful illustration of the need of standardization of hose couplings. Through the efforts of the National Board of Fire Underwriters—a capital stock fire insurance company organization—and the many insurance service organizations and Fire Marshals in the various states, a campaign for the adoption of the National Standard Hose Coupling Thread, as approved by the American Standards Association, resulted in 6,000 cities and towns changing to that standard.

The federal government, largely through the National Bureau of Standards, has done much to produce and test out standards having to do with fire safety in buildings.

Curtis W. Pierce, *recently elected a director of the American Standards Association, is president of the National Fire Protection Association and president of the Factory Insurance Association. He is a nationally recognized leader in the field of fire protection and has long been active in various organizations concerned with standardization in this field.*

NBFU's Building Code Is Guide For Safe Construction Standards

The National Board of Fire Underwriters devotes much of its energy toward the development of standards for the safe construction of buildings —public and private, industrial and residential. Its building code, first issued over 40 years ago, has been a guide to much of the building code developments since that time. Fire exits, fire walls, fire doors, protection of openings, chimney and flue design, air conditioning, lightning protection, and roof construction are but a few of the features included in these building standards. The NBFU has also published standards, largely as recommended by the National Fire Protection Association, covering the installation of heating and ventilating equipment, fuel gas and pulverized fuel-burning systems, liquefied gas and fuel oil-burning systems, and the storage and handling of flammable liquids, gases, chemicals, and explosives. These are also covered in a "Suggested Fire Prevention Ordinance." The NBFU is taking a leading part in the development of national building codes through membership in the Building Code Correlating Committee of the American Standards Association and through sponsorship of some of the individual projects in the ASA program on building standards.

The National Electrical Code is one of the most useful and valuable tools in existence for creating not only a more uniform nation-wide system of transmitting and using electricity but also in effecting safe installations in the home, in the factory, and in places of public assembly. This standard, in its early editions the work of an NFPA committee, has since 1921 been revised under the procedure of the American Standards Association by the NFPA Electrical Committee which also is organized as an ASA sectional committee. It is published by both the NFPA and NBFU.

Installation standards alone, however, have not been solely responsible for safety to life and property from fire. In the case of automatic

Underwriters' Laboratories, Inc

Heavy duty industrial electrical switches are given overload and endurance tests to determine that they will safely carry their normal currents.

sprinkler systems it was necessary to filter out, from the many ingenious types of sprinkler heads, those that could be depended upon when subjected to a wide variety of operating conditions. To this end, standards were set up for the design and performance of sprinklers, this work having been carried on by the Underwriters' Laboratories, Inc, and the Factory Mutual Laboratories. Under a variety of temperature and pressure conditions, as well as conditions of exposure to corrosive atmosphere, test standards were set up by the laboratories. Specimen sprinkler heads of each type were submitted and subjected to these standard test conditions. Those that passed successfully were approved. This work has continued for more than half a century and today there is a wide choice of sprinkler equipment available, the laboratories' listing being all that is necessary on a piece of equipment to assure the purchaser that material, construction, and workmanship are satisfactory.

Similarly, in the selection of fire extinguishers, fire hose, fire doors, fire alarm devices, oil burners, and electrical equipment, it is the mark of safety and of dependability to find the "label" of one of the laboratories on a piece of equipment. It is evidence that this equipment, regardless of its design, has been examined, tested, and found to be in full compliance with standards set up by the laboratories for such equipment and that it can be expected to function in a safe and satisfactory manner. It assumes, of course, that the equipment is installed, operated, and maintained in the manner specified by the manufacturer. On this particular point, when a piece of equipment breaks down or gives trouble it can frequently be traced not to a defect in the device itself but rather to its misuse, abuse in service, or old age.

Strict standards have been set up to assure the public, through the fire departments, that fire engines and other fire-fighting apparatus are designed to meet requirements. For example, pumping engines are put through grueling tests of continuous operation before delivery is accepted. Equipment must be "up to standard."

Public water supplies, used for fire-fighting purposes, the distribution piping and hydrant system of cities and towns are continually studied by the National Board of Fire Underwriters and other organizations to make sure that public protection is extended and increased as the community expands. This is a continuing study aimed at having ample fire-fighting capacity in case of emergency. Also, the American Water Works Association and the various state or national health bureaus have rigid standards which must be met in connection with the design and construction of public water supplies and the component parts thereof; these standards have been followed in the layout of private fire protection such as one finds in industry, where pumping stations, elevated gravity tanks, reservoirs, and extensive underground fire mains distribute water for fire-fighting equipment throughout the property.

In connection with the storage of water, in publicly or privately owned welded tanks or standpipes, the American Welding Society has very rigid standards that must be complied with in any fabrication by the welding method. The standards of the American Society for Testing Materials, the American Society of Mechanical Engineers, and the American Society of Civil Engineers are among those of other organizations which play a major role in the design of water supply systems which, in turn, play a very important part in fire protection.

The American Society of Mechanical Engineers, in its Standards for Unfired Pressure Vessels, has a code which must be satisfied in the design and construction of tanks in which hazardous gases and flammable liquids are stored under pressure for fuel and for chemical reaction purposes. Propane, butane, butadiene, fuel gas, hydrogen, etc, are among those falling in this classification.

Trained Inspectors, Engineers Supervise Standards in Practice

The nationally organized inspection services maintained by insurance groups have, as one of their assignments, the job of supervising fire protection standards as applied in practice. A highly trained group of engineers and inspectors, who have kept themselves informed of standards through membership on standards-making committees or from a study of committee reports and who have the added advantage of refresher courses in modern educational and training laboratories, are fully equipped to act as consultants to industry for the provision of approved, standard fire protection equipment.

It is obvious that, without carefully developed standards based upon sound engineering and experience, fire protection—with its present high standard of efficiency—could not have been attained. Trial and error in fire safety is exceedingly dangerous, as any one failure may mean disaster.

While it was necessary during the

war to depart somewhat from previously recognized standards in fire protection, because of the scarcity of materials and the concentration of industrial production in the direction of national defense and of winning the war, it is high time now that we return aggressively to the pursuit and development of higher standards than we have ever before had. It is not a coincidence that our annual fire loss record has now attained an all-time high of more than $600,000,000 so soon after World War II. Careful analysis of individual disasters will generally disclose violations in one or more standards in construction, operation, maintenance, or protection.

In the interest of fire safety and of reversing the upward trend of our national fire loss record, every effort should be directed toward the future improvement of fire protection standards and—equally important—the application of those standards wherever and whenever they apply.

By bringing the associations working on fire protection standards together around a common table, the American Standards Association provides for the development of American Fire Protection Standards having a national acceptance beyond question as an aid to all interested in fire protection work. Only through the complete cooperation of all concerned can the annual fire loss of lives and property be brought under control. The national economy demands that this obstruction to advancement be eliminated.

How Judges Ruled on Injury Rate Cases

BECAUSE of widespread interest in the first 20 decisions handed down by the Committee of Judges on methods of compiling injury rates, these decisions are published below. The Committee of Judges was appointed to rule on how the American Standard Method of Compiling Industrial Injury Rates, Z16.1-1945, should be applied in questionable cases, thus bringing about more uniform practice in the compiling of statistics concerning industrial injuries. Any safety engineer who has a question concerning the application of the standard can obtain a ruling from the judges by sending the facts in the case to the American Standards Association.

CASE 1. A company reported that it had been doing certain work under government contract. Although this work was under the management of their Main Works, it had been performed in a separate building in the city. Because of the innate nature of the work performed, there had been a very high rate of dermatitis. The rate of these dermatitis cases was such that if they were combined with the record of the Main Works they would make a marked change in the frequency and severity rates and might thereby affect the interest of their regular workers in their main plant by having such a serious record charged to them. The writer questioned whether or not these cases should be counted since the work was done specifically at government request, and secondly, how they should be handled. The committee of judges agreed that these cases should be counted and must not be ignored. They suggested that under the circumstances separate accident records should be set up for the government operation and recommended that these should not be combined with those of any other plant, except for the summary of all plants. It was agreed that this condition applied to paragraphs 2.1 and 5.1 in the standard.

CASE 2. A company brought up the question, "Is an injury which has been nondisabling up to the time the employee is laid off due to reduction of force, to be charged as a lost-time accident because the employee files a claim for compensation at the time he is laid off?" It was agreed that as far as the American Standard Z16.1-1945 was concerned, these cases should not be counted as lost-time cases. This case apparently applies to 3.7 in the standard.

CASE 3. A company called particular attention to 3.4.3 and asked if it were permissible to extend the 48-hour observation period to cases of delayed effect from electrical shock. It was agreed that the sectional committee had strictly limited paragraph 3.4.3 to the three types of injuries shown in the standard and that this paragraph should not be extended to any other types of injury.

CASE 4. A company reported that two employees had been injured while riding in a company truck, returning from a job of prospecting for bauxite. The case appeared to be analagous to those set up under 2.1.-5.1 and it was agreed that the two cases in question should be included in the rates.

CASE 5. An individual had written concerning an interpretation of 3.4.1. In his letter he had considered the wording of this paragraph as being difficult of interpretation and had finally come to the conclusion that if an injured employee returned to work *any time* "during the corresponding shift on the following day" that the injury should not be counted as a temporary total disability. After reading this letter the committee recommended that at the next revision consideration be given to a rewording of this paragraph in order to eliminate any possible confusion as to the meaning.

CASE 6. A company sent in a letter requesting an interpretation of 2.6. They stated that they had many cases where employees were working in a steel mill and received heat prostration, heat insulation, or a muscular cramp condition, which according to their doctors were undoubtedly aggravated by a poor physical condition or living habits of the employee. This has been answered on the fundamental basis that if the employees were exposed to a greater amount of heat than the general public, which would probably be the case in a steel mill, that these cases should be counted on the ground that there was a definite aggravation of a pre-existing condition.

CASE 7. A company reported an injury resulting from an epileptic fit. The employee had been sweeping out a box car and had sat down on the floor of the box car at the door, with his feet hanging down. During the fit he had fallen and struck his head on a nearby rail. It was agreed that the injury should be counted on the basis of paragraph 2.3 on the grounds of the injury aggravating a pre-existing physical deficiency or weakness.

Attention was called to the fact that whereas 2.3 makes provision for an injury causing an aggravation of a pre-existing physical deficiency or weakness there is nothing in the present standard to take care of the case where a person becomes sick on the job or loses control of himself because of an existing physical deficiency or weakness and as a result of this loss of control he then becomes injured. After further discussion it was generally agreed that any case of injury from epilepsy should be included in the rates. It was further recommended that in any subsequent revision of 2.3 consideration should be given to rewording to state, "If an injury occurring during the course of employment ag-

gravates *or results from* a pre-existing deficiency or weakness. . . ."

CASE 8. A company called attention to the fact that although detailed decisions had been included in the standard to define which hernias should be included, there had been no mention of back injuries. It had been their experience that there had been more cases of malingering due to back injuries than to hernias, and they wondered why no provisions had been included in the standard on back injuries. The only provision in the standard now is in paragraph 3.7 concerning doubtful cases where the opinion of the physician engaged by the employer should be used to determine whether the back injury was real or was a false claim.

In the discussion of this case it was recognized that back injuries were a real problem but there were no concrete suggestions or recommendations for further handling of this situation. It was agreed that no further action should be taken but the subject should probably be given further consideration at any subsequent revision of the code.

CASE 9. A company asked for an interpretation of 4.3 on a case where an injury of the tip of the left, middle finger had resulted in a slight bone involvement. The letter had included x-ray photographs which were reviewed in detail by the committee. As a result of the review of the x-rays the committee agreed that there had been bone damage and therefore the case should be charged as a permanent partial disability with a time charge of 75 days.

CASE 10. A company reported an injury on board ship where an employee had been thrown from his bunk in a rough sea and had sustained a broken arm. It was reported that this employee was not on duty at the time. The committee considered that this case had been covered under paragraph 2.1.2 and that this case should not be included in the rates.

CASE 11. A company reported a case where an employee had been injured and had been assigned to another regular job which was open and available to him. During the healing period there had been a reduction in the work force and the regular established job or disability assignment was no longer open and available to him and he therefore had been out of work for several days before recovery from the injury. They had asked whether or not this should be counted as a temporary total disability. It was agreed that if during the healing period a disability assignment was no longer open and available to the employee and he therefore lost time that this should be considered a temporary total disability for the time interval from the time that the disability assignment was no longer available until such time as the employee, in the opinion of the doctor, was able to resume his regular job.

CASE 12. A company asked for an interpretation of paragraph 3.6.1. An employee had received a minor injury which was properly reported. The medical department in treating this case used an infrared lamp. Through improper adjustment or prolonged baking the employee sustained a second degree burn on the calf of his leg, which resulted in a lost-time disability. The question was whether or not 3.6.1 could be applied to this case. After full discussion it was agreed that 3.6.1 should be strictly limited to the cases mentioned in the paragraph and should not be broadened to include any other cases and should therefore not apply to the letter in question and the injury should therefore be included as a temporary total disability.

CASE 13. A company gave a detailed history of a hernia case and asked whether this should be counted in the records in accordance with paragraph 2.2. In subsequent correspondence they asked particularly if the description which they had given showed a clear history of accident in accordance with paragraph 2.2(a). After detailed review of the correspondence the committee agreed that the facts as stated showed a clear history of an accident resulting in a hernia.

CASE 14. A company asked for the correct procedure for reporting cases which had not involved lost time until several months after the injury. They reported a specific case of an injury on August 27, 1945 which did not lose any time until May 1946. It was agreed that this situation was taken care of by paragraph 6.2, whereby the injury would not be included in either the 1945 or 1946 rates, but would be included in any long term report, which included the rate for 1945.

CASE 15. A company reported two incidents of employees suffering a dislocation of the semilunar cartilage. The company agreed that the injury had aggravated a pre-existing weakness or deficiency, but they questioned whether or not there had been an accident in accordance with paragraph 2.3. After a detailed study of the facts of the two cases presented, the committee agreed that the facts as stated showed these two injuries to have been sustained in the course of and arising out of employment and there had been no exception taken to this type of injury and therefore they were covered by paragraph 2.1. It was stated that the acts mentioned in these two cases were sufficient to cause the injuries and therefore these should be included in the rates.

CASE 16. A company reported a case where in a single accident there was an amputation of a finger and at the same time a fracture of a second finger. The doctor had reported that the man had lost considerable time from work after the amputated finger had healed because the second finger was fractured. The question concerned the time charges for this accident. The committee agreed that this had been covered under paragraph 4.3. The committee decided that the standard as now written provides that in any case of permanent partial disability a time charge shall be only for the permanent disability and that no charge shall be made for the temporary total disability even though the temporary total disability may be more than the time charges.

CASE 17. A company asked for instructions on the time charges to be applied in the case of a back injury in which the man did not return to work in the plant. The case was settled by an agreement for a permanent partial award of 16½ weeks of compensation in addition to the actual days lost until the doctor indicated that the employee was able to go back to work. It was agreed that this had been covered under Note 4 in paragraph 4.3; that the opinion of the doctor should be obtained as to the percentage of permanent total injury from this back injury, and this percentage applied to 6,000 days to arrive at the time charge. In discussing this case it was further considered that if due to circumstances it was no longer possible to obtain an opinion from the doctor a second method might be to compare the total compensation payments in this case to the award in that particular state for permanent total disability and use this as a percentage to apply to the 6,000 days. Since the state awards for permanent total disability vary it was thought that this should only be used as a last resort.

CASE 18. A shipyard submitted a letter, together with a copy of a letter written by the supervisor and three copies of the full report of the circumstances of a death case. In this particular case the employee had climbed from the hold of a ship up a vertical ladder about 28 feet and at the top of the ladder he had lost his hold and fallen to the bottom and suffered injuries from which he died. According to eye witnesses the man had just simply failed to grasp the top rung of the ladder with his hand and they questioned as to whether he might have had some physical weakness or heart attack, which had caused him to lose hold. After consideration of all of the details presented on this case the committee agreed that this should be counted as a death case in the records.

CASE 19. A company reported an accident in which an employee had suffered a broken leg while on company business in a service station when he was struck by an automobile driven by a customer. It was reported that the customer had carried insurance and the case was being settled as a third party case without any financial loss to the employer. The first question was, "Should disabling injuries arising out of and in the course of employment, caused by the act of a third party, be included in our rates?" and the second question, "Does the fact that the employer and employee will probably suffer no financial loss have any bearing on your answer?" The committee considered the actual facts in this case and decided that the case cited was an injury arising out of and in the course of employment and that it should be included in the rates. They further came to the conclusion that the facts concerning the financial loss had no bearing upon this answer.

CASE 20. A company reported that an employee had sustained an injury to the left index finger. The employee had been using a pair of scissors and had cut her finger. There had been profuse bleeding but no sutures were required for the wound. It was treated by the plant Medical Department and the employee was given instructions regarding the bathing of her hand while at home. On the following evening while washing her hands at home, the employee struck her injured finger against the wash bowl and the wound started bleeding. The employee fainted. Her mother summoned her personal physician who gave the employee a sedative and put her to bed for the evening. As she was working on the night shift, this resulted in one day of lost time. The company wished to know if this should be counted as a temporary total disability or only as a medical treatment case. The committee of judges decided that this injury should be included as a temporary total disability and that the time charge for this injury should be one day.

Basic Graphical Language—

can expand for complex terms

New American Standard Graphical Symbols for Electric Apparatus gives 152 basic symbols for use on drawings; can be combined to represent complex apparatus for which standard symbols are not already available

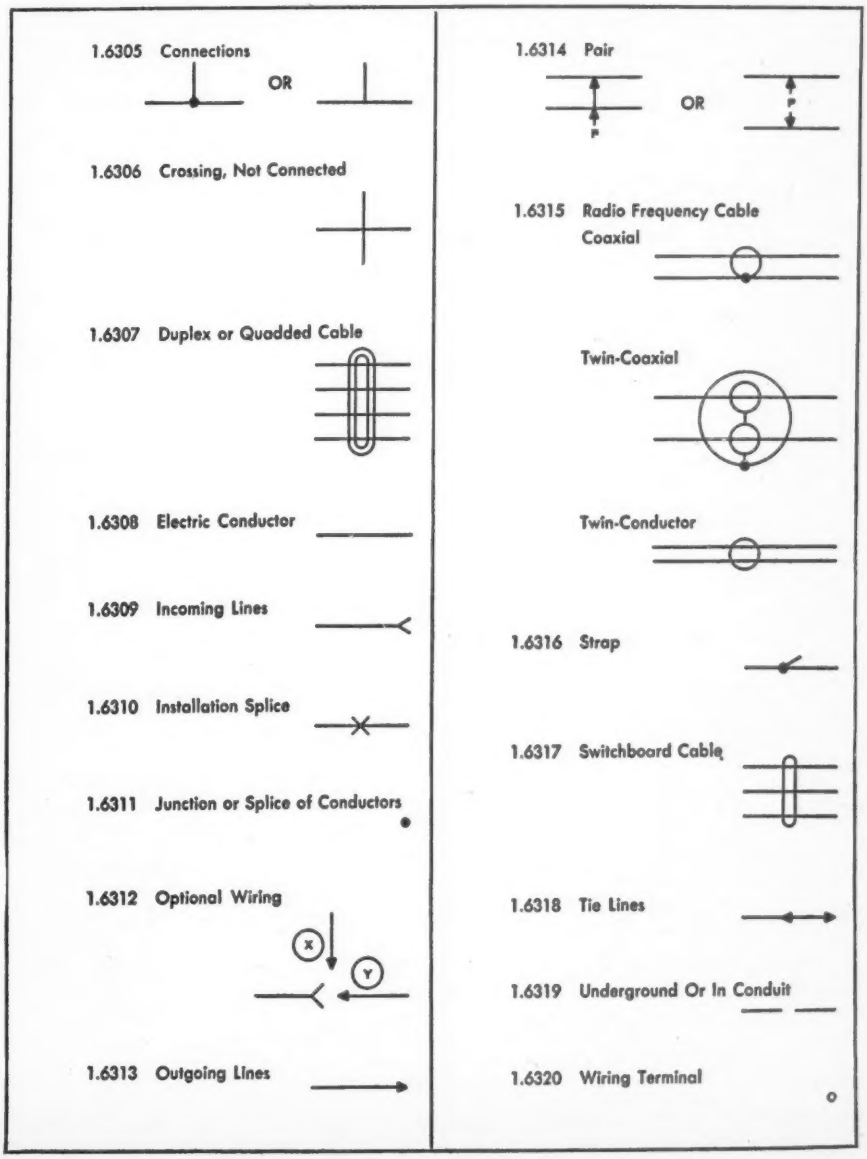
A "MASTER" standard which covers drawing symbols used in wide sectors of the electrical field has been completed and is now ready for distribution by the American Standards Association. Sponsored by the American Institute of Electrical Engineers and the American Society of Mechanical Engineers, the new standard is known as the American Standard Basic Graphical Symbols for Electric Apparatus, Z32.12-1947.

This recent development provides "building blocks" consisting of 152 basic symbols for electrical drawings, which, in combinations, can be used to describe an almost endless variety of devices on electrical diagrams. As an alphabet is needed to form words, so these basic symbols when combined will yield more complex symbols.

Actually, the symbols contained here are not new. They have been available previously in separate American Standards—namely, Graphical Symbols for Power, Control, and Measurement, Z32.3-1946; Graphical Symbols for Telephone, Telegraph, and Radio Use, Z32.5-1944; and Graphical Symbols for Electronic Devices, Z32.10-1944. The new standard in no way supersedes these three but, rather, gives their basic components.

This is an important achievement, for it places at the disposal of the electrical industry a master code upon which to build more complex symbols. Conversely, it provides a series of basic definitions from which one can interpret new and more complicated forms. This latter accomplishment is particularly valuable for draftsmen and engineers during that intermediary period when newly formed graphical symbols have not yet been incorporated in any of the existing standards. Until a revision is made, this present master symbol code provides a source of reference for explanation of a term, provided that, when new symbols are formed, they are based where possible upon the symbol components shown in this standard. For example, a dynode combines the anode and the photocathode convention of an electron tube. Similarly, any combination of inductors may be made into a particular convention to show various winding and core combinations. Specific jack, key, and relay symbols should also be made up of the various basic symbols given.

Some of the classes treated in the new standard include those covering the electronic, thermionic, and cold cathode fields, and photo-emissive



tubes, transformers, inductors, and capacitors.

This is one more step in the overall attempt to coordinate graphical symbols in the electrical industry which, during the past 50 years, has developed generally along two lines. One, "communications," has been concerned primarily with the transmission of intelligence electrically, while the other, "power and control," has handled the generation, transmission, distribution, and use of electrical energy.

Until the era of World War II, these fields had overlapped very little. With the development of electronic devices and other new apparatus, however, these two areas began to interlace more and more frequently. This situation was particularly apparent in the aircraft industry where common sets of drawings for design, manufacture, and maintenance were in use.

Previously, both the communications and the power and control branches had developed and applied their own sets of graphical symbols. This was possible because the use to which these devices were put in the communications field was in many cases different from the use to which they were put in the power and control field.

The war, however, brought to light the grave problems to be faced without uniformity in drawing symbols. The Armed Forces, for instance, began to receive drawings from these two fields on which identical symbols in different circuits depicted entirely different devices. When it came to training large numbers of new personnel, the Armed Forces found this lack of standardization a serious situation.

Manufacturers in the electrical industry itself soon became aware of the same problem when they found that for the same basic equipment they were required to furnish different drawings of the types customary in the two branches of the electrical industry.

With both the Armed Forces and industry in agreement, the attempt to resolve conflicting symbols got under way quickly. Two American Standards were already in existence, one on Graphical Symbols for Power, Control, and Measurement, Z32.3-1943, and the other on Graphical Symbols for Telephone, Telegraph, and Radio Use, Z32.5-1942.

Discussions among officers of the ASA committees on graphical symbols, representatives of the National Aircraft Standards Committee, of the Aeronautical Board, and of the Signal Corps Standards Agency resulted in the initiation of a war project with the object of eliminating the conflicts between these two standards and producing a set of symbols as nearly universal as possible. The outcome of sectional committee work on this project was in the approval of the American War Standard Coordination of Electrical Graphical Symbols for Use on Drawings, Z32.11-1944, and it is this standard which is being replaced by the new American Standard Basic Graphical Symbols for Electric Apparatus, Z32.12-1947.

As already explained above, this standard lists the basic components from which the more complex symbols contained in the American Standards for Graphical Power, Control, and Measurement, Z32.3-1946; Graphical Symbols for Telephone, Telegraph, and Radio Use, Z32.5-1944; and Graphical Symbols for Electronic Devices, Z32.10-1944 are derived. The two latter standards are at present under revision and any changes will be made in keeping with the basic symbols outlined in the American Standard Basic Graphical Symbols for Electric Apparatus, Z32.12-1947.

As the use of coordinated symbols is increased, further standardization will be considered.

New Sizes for Lantern Slides?

By Oscar W. Richards

ONE of the subjects being considered by a subcommittee of the ASA Sectional Committee on Standardization in the Field of Photography, Z38, is standardization of dimensions for lantern slides for projecting pictures onto a screen. Despite the fact that the sizes of slides for the most widely used projectors are standardized, the subcommittee ran into some serious questions during its study of the situation. As a result, it decided to issue a proposed standard for a period of a year's trial and criticism and to ask all concerned to comment on the committee's recommendation. Copies of the Proposed American Standard Dimensions for Intermediate and Larger Lantern Slides, Z38.7.18, can be obtained from the American Standards Association. The proposed standard provides dimensions for 2¾ x 2¾-in. and for 4 x 5-in. slides.

The increasing popularity of the 2¼ x 2¼-in. picture size led to a request about two years ago from a dealer group that the American Standards Association establish standard dimensions for a lantern slide for this size. Most of such slides probably would be used for color projection.

Subcommittee 7 on Printing and Projection Equipment had considered this possibility some years ago when standards were first developed for lantern slides. In fact, such a slide was listed in the proposed standard published in February 1941 for a year's trial and criticism. Since no projector using this size slide was manufactured at that time, the subcommittee voted not to include a 2¼ x 2¼-in. size in the final edition of the American Standard Dimensions for Lantern Slides, Z38.7.13, approved in 1944.

The request for the 2¼ x 2¼-in. slide raised two interesting and important problems which are now under consideration. First, what should be the dimensions for a mounted slide of this size? And second, should the subcommittee set up dimensions now, or wait until such dimensions may become established by use?

The second question has received much discussion in Subcommittee 7.

If there is to be another size, some members believe that values which would best serve the interests of photographers should be formulated by the members of the sectional committee, utilizing their combined consumer and industrial experience. The objection to this view is that such dimensions necessarily limit the design of new projectors, and it may be better to standardize sizes after the designs are completed and have found acceptance on the open market.

Should Another Size Be Recognized?

The other important question is should another standard size slide be recognized, or would it be better to mount 2¼ x 2¼-in. transparencies in the regular 3¼ x 4-in. slide? The slides which fit in standard projectors could easily be made with a mask having a smaller opening. The image on the screen would be proportionally smaller unless a lens of shorter focal length were used. The designer, however, might well call attention to the fact that in this case only about 52 percent of the illuminated area of the standard slide would be used, resulting in an image about half as bright as could be attained by a design that would concentrate the available light within the aperture used.

Assuming that there may be a need for a smaller slide for 2¼ x 2¼-in. pictures, the subcommittee decided to propose dimensions that limit the completed slide to 2¾ x 2¾ in. (69.9 x 69.9 mm) ± 1/32 in. (0.8 mm) by a maximum thickness of 5/32 in. (4.0 mm). The projected portion would be within a centrally located area of 2 3/16 x 2 3/16 in. (55.6 x 55.6 mm).

During the subcommittee's work on this problem, a manufacturer suggested that dimensions should also be standardized for a 4 x 5-in. lantern slide which is used occasionally with color transparencies for advertising. A few projectors using this size slide have been made as special jobs. Suggested dimensions are: 4 x 5 in. (101.6 x 127 mm); maximum thickness 5/32 in. (4.0 mm); projected area 3½ x 4½ in. (89 x 114 mm). Both slides (2¾ x 2¾ and 4 x 5 in.) would have the standard thumb mark in the lower left-hand corner when the slide is viewed as it is to appear on the screen.

At its meeting late last year, Subcommittee 7 discussed these questions and came to the conclusion that sufficient information was not available at that time and that no attempt should be made then to answer the two questions mentioned above. It did vote to submit the proposed dimensions for intermediate (2¾ x 2¾ in.) and larger (4 x 5 in.) lantern slides, Z38.7.18, to the sectional committee with the recommendation that they be printed for a one-year period of trial and criticism so that all concerned might become acquainted with the problem. The dimensions proposed are those that the committee believes to be good, yet they may be changed at the end of the year should they not prove satisfactory, or should they be surpassed by the designers. This is the proposal that has now been published and is before all concerned for comment.

***Oscar W. Richards** is chairman of Subcommittee 7 on Printing and Projection Equipment of ASA Sectional Committee on Standardization in the Field of Photography, Z38.*

Mr Richards will welcome comments on the Proposed American Standard Dimensions for Intermediate and Larger Lantern Slides, Z38.7.18, which was prepared by his subcommittee and is now being circulated for criticism. His address is American Optical Company, Scientific Instrument Division, Box A, Buffalo 15, New York.

Copies of the Proposed American Standard can be obtained from the American Standards Association for 15 cents.

Many Useful Comments Received By Publication of Proposed Standard

The publication of this proposed standard has already brought forth useful comment. It has been suggested that if these recommendations are adopted they should be divided into separate standards with introductory scope paragraphs to indicate their applications. One comment strongly opposes another size of lantern slide and projector.

All criticisms and comments sent to the American Standards Association or to the writer will be carefully considered by Subcommittee 7 at the end of the year's trial period when this proposed standard must be approved without change, or changed and approved, or not approved. May we have your constructive comments?

Today's Standardization Trends

"Today, one of the most important trends in standardization is its movement from government domination and toward operation on a voluntary basis by industry. . . .

"Of significance, also, is the growing recognition by industry that standards engineers must occupy a more important place among its technicians. For much too long they have been tolerated, but not given the proper degree of respect. While work in standardization is accorded recognition in most engineering circles, it seems to be the opinion of some in high places that the benefits derived from standards are highly intangible. Others argue that results from engineering in the field of standardization are usually evidenced a long ways in the future and, therefore, are not as important as the current work of designing new products and getting them into production. . . .

"Even though standardization has been of considerable importance to nearly all types of manufacturing and servicing for the past twenty years, it is still necessary to impress those who are in position to do most for advancements in this field that standards activities are not designed to make products uniform or to deter design differences. They are set up to effect manufacturing economies that could not otherwise be accomplished. These benefits are passed on to the ultimate consumers which results generally in higher standards of living.

"Well informed industrialists have come to realize that without standards a minimum of versatility results . . . and where versatility doesn't exist, only a minimum amount of industry can survive."

—From an editorial by W. B. Peirce, president, American Society of Tool Engineers, in the *Tool Engineer*, April 1947.

Diversity of Interest Represented By Four New ASA Member-Bodies

THE American Standards Association is pleased to welcome four outstanding associations as Member-Bodies of the organization. As part of this national federation of trade associations, technical societies, and government agencies, these new members will work together with other members of the ASA in sharing responsibility for the development of effective national standards. These recent additions are the Air Conditioning and Refrigerating Machinery Association Inc, the Aluminum Association, the American Foundrymen's Association, and the Portland Cement Association.

Air Conditioning and Refrigerating Machinery Association

While it is one of the newer members of the ASA, the Air Conditioning and Refrigerating Machinery Association is no newcomer in the field of standardization. For over forty years the representatives of ACRMA's member companies have been active in the standards work of the Society of Refrigerating Engineers and have contributed substantially to the progress of that organization.

The Association and its member companies have been represented on the Mechanical Standards Committee and a number of ASA's sectional committees, including the Safety Code for Mechanical Refrigeration, B9; Pipe Flanges and Fittings; B16; Code for Pressure Piping, B31; Wire and Sheet Metal Gages, B32; Refrigerators, B38; Pressure and Vacuum Gages, B40; Leather Belting, B42; Classification and Designation of Surface Qualities, B46; Refrigeration Nomenclature, B53; Ventilation Code, Z5; and Graphical Symbols and Abbreviations for Use on Drawings, Z32. In addition, they have worked with the American Society of Mechanical Engineers and other engineering societies.

For many years little was done to standardize equipment performance and application in this field. It was not until the middle 1930's that the Refrigerating Machinery Association, predecessor of the present ACRMA, took its first tentative steps along the path of equipment standardization. In those formative years of the Association's standardization program, the chairman of the standards committee and the driving force in this activity was Stewart E. Lauer, now president of the York Corporation and current president of the Air Conditioning and Refrigerating Machinery Association.

In the past decade, however, great progress has been made. The 1946 edition of *ACRMA Equipment Standards* lists over 30 equipment and application standards, all of which are completely voluntary. A number of additional standards will be published during the coming year.

Aluminum Association

All of the chief producers and semi-fabricators of aluminum in the United States are members of the Aluminum Association, making it more than 85 percent representative of the aluminum industry.

The Association grew out of an organization called "Association of Manufacturers in the Aluminum Industry," which was set up in 1933 to form a code for the industry under the NRA. The present name was adopted in 1935.

The functions of the Association include special services to members, representation of the industry on government boards, the supplying of data in response to specific inquiries within and without the industry, exchange of services with related industries, and the maintaining of an information service for the general public.

Regular Association meetings are held three times a year. Meetings of the Aluminum Sheet Division, Extrusion Division, and the Foundry Division are held in conjunction with these Association meetings. The Foundry Division also holds additional meetings during the year at intervals of approximately six weeks.

President of the Association is R. G. Farrell, Fairmont Aluminum Company, and Donald M. White is secretary-treasurer.

American Foundrymen's Association

The American Foundrymen's Association is a technical society whose primary aim is the dissemination of information relative to the foundry industry. At the present time, it has over 9,000 members, of which over 600 are outside the United States and Canada.

Where practical, the AFA is also the medium by which standardization in the industry is accomplished. In this respect it has cooperated with all of the important agencies which are dealing with problems of common interest. Included here is the American Standards Association, on whose Mechanical Standards Committee the AFA is represented.

S. V. Wood, Minneapolis Electric Steel Castings Company, is president of the Association. S. C. Massari is technical director.

Portland Cement Association

The Portland Cement Association is a national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work, and has functioned continuously since 1915. It has more than 60 member companies which produce a major

Left to right:—Stewart E. Lauer, S. V. Wood, and Frank T. Sheets.

proportion of the portland cement used in the United States and Canada. Its work is financed by members' contributions, voluntarily paid in proportion to their shipments.

The Association does not engage in the manufacture or sale of cement. Its activities are limited to scientific research, the development of new or improved products and methods, technical service, promotion and educational effort (including safety work in cement mills).

In line with a program of increased progress and expansion in its research and development activities, the Association has recently created a Division of Research and Development which is headed by Dr A. Allan Bates.

The Portland Cement Association is already very active in the work of the ASA. Specifically, its representatives serve on the Standards Council and the following ASA sectional committees: Portland Cement, A1; Methods of Fire Tests of Building Construction and Materials, A2; Drain Tile, A6; Methods of Testing Road and Paving Materials, A37; Building Code Requirements and Good Practice Recommendations for Masonry, A41; Plastering, A42; Building Code Requirements for Fire Protection and Fire Resistance, A51; Building Code Requirements for Excavations and Foundations, A56; Methods of Recording and Compiling Accident Statistics, Z16; and Sieves for Testing Purposes, Z23.

Frank T. Sheets is president of the Association.

Withington Heads Board of Examination

The members of the ASA's Board of Examination, which supervises the miscellaneous projects not under the jurisdiction of correlating committees in specific fields, have been named for the coming year. They are:

Sidney Withington, electrical engineer, New York, New Haven and Hartford Railroad (reappointed), *Chairman*
C. N. Hoagland, production engineer, Bullard Company (reappointed)
Maurice N. Quade, Parsons, Brinckerhoff, Hogan & MacDonald (reappointed)
David V. Stroop, assistant to the president, American Petroleum Institute
Frank Thornton, Jr, engineering manager, Association Activities, Westinghouse Electric Corporation

New ASA Members

Through their participation in and financial support of the American Standards Association, the following companies and individuals now have an active part in the national standardization program:

Allied Products Corporation, Detroit, Michigan
Altorfer Brothers Company, East Peoria, Illinois
American Type Founders, Inc, Elizabeth, New Jersey
Bailey Meter Company, Cleveland, Ohio
The Baldwin Locomotive Works, Philadelphia, Pennsylvania
Blaw-Knox Company, Pittsburgh, Pennsylvania
Briggs & Stratton Corporation, Milwaukee, Wisconsin
Cobb & Drew, Inc, Plymouth, Massachusetts
The Columbus Bolt Works Company, Columbus, Ohio
Combustion Engineering Company, Inc, New York, New York
Container Corporation of America, Chicago, Illinois
Elco Tool & Screw Corporation, Rockford, Illinois
Equitable Gas Company, Pittsburgh, Pennsylvania
Erie Bolt & Nut Company, Erie, Pennsylvania
General Controls Company, Glendale, California
Hagan Corporation, Pittsburgh, Pennsylvania
Charles O. Larson Company, Sterling, Illinois
Mason-Neilan Regulator Company, Boston, Massachusetts
Midwest Screw Products Company, St Louis, Missouri
National Machine Products Company, Detroit, Michigan
The Ohio Crankshaft Company, Cleveland, Ohio
Public Service Electric & Gas Company, Newark, New Jersey
St Louis Screw & Bolt Company, St Louis, Missouri
Shakeproof, Inc, Chicago, Illinois
Thomas Smith Company, Worcester, Massachusetts
Torrington Manufacturing Company, Torrington, Connecticut
The Turner Brass Works, Sycamore, Illinois
Wheelco Instrument Company, Chicago, Illinois

Dott Ing Derossi, Torino, Italy
Charles L. Devoe, Boston, Massachusetts
H. C. Ramanna, Bombay, India

Propose Commercial Standard for Textile Flammability

A new proposed Commercial Standard for the flammability of textiles is being circulated to the trade by the National Bureau of Standards. Based on the pending Arnold-Capehart Bill to restrict highly flammable textiles and apparel, the new standard (TS 4350) contains several amendments to the previously proposed standard (TS 4258) circulated last November.

The *Journal of Commerce* reports that many of the amendments are based upon suggestions received from the trade, the American Association of Textile Chemists and Colorists, and the National Retail Dry Goods Association, sponsor of the Arnold-Capehart measure. One of the most important changes requires that only dangerously flammable textiles and textile products need bear a label warning of their "dangerously flammable character." The requirement previously had been that fabrics not considered to be dangerously flammable should be labeled "safe when worn." This change would relieve manufacturers of a heavy burden, since only about 4 percent of textile fabrics are considered to be highly dangerous, the *Journal* reports.

The *Journal of Commerce* also states that the new standard defines textiles as all clothing and materials which may be used for clothing and deletes the requirement that the flammability testing apparatus be inspected and approved by the American Association of Textile Chemists and Colorists.

Among other specifications in the proposed standard is the requirement that a textile fabric or product be dry cleaned or washed before being treated for flammability.

Much opposition to the flammability bill has been voiced by several textile leaders, according to the *New York Herald Tribune*. On the grounds that the issue is too new and that the proposed controls have not been subject to adequate tests, Dr C. T. Murchison, president of the Cotton Textile Institute, and John L. Severance, secretary of the Association of Cotton Textile Merchants of New

York, presented briefs against the measure at a hearing of the House Committee on Interstate and Foreign Commerce.

The prospects of any Federal legislation on flammability at this session of Congress are very remote since it is reported that both Houses of Congress have decided to take no further action until after the National Bureau of Standards has completed action on a voluntary commercial standard. The procedure followed by the Bureau in developing these so-called "voluntary trade standards" usually requires from six months to several years to complete and issue a standard.

At its last meeting, the Advisory Committee on Ultimate Consumer Goods of the American Standards Association recommended that the ASA project on flammability of fabrics be referred to the sectional committee on Textile Test Methods, L14.

SAE Approves Standard For Hydraulic Brake Fluids

A standard for hydraulic brake fluids used in motor vehicles has been approved by the Technical Board of the Society of Automotive Engineers for publication in the 1947 *SAE Handbook*.

A result of work initiated in 1936, the standard was prepared by the Hydraulic Brake Fluid Subcommittee, composed of engineers from the staffs of manufacturers of hydraulic fluids, brakes, and vehicles. It covers heavy-duty and moderate-duty fluids, outlines minimum performance requirements, physical properties, detailed test procedure and apparatus. Such properties as viscosity and water tolerance; boiling, flash, and cold points; neutrality, stability, rubber swelling, and corrosion limitations are established by the specifications.

A subcommittee is continuing its work, studying relationships between brake fluids and corrosion of braking system parts.

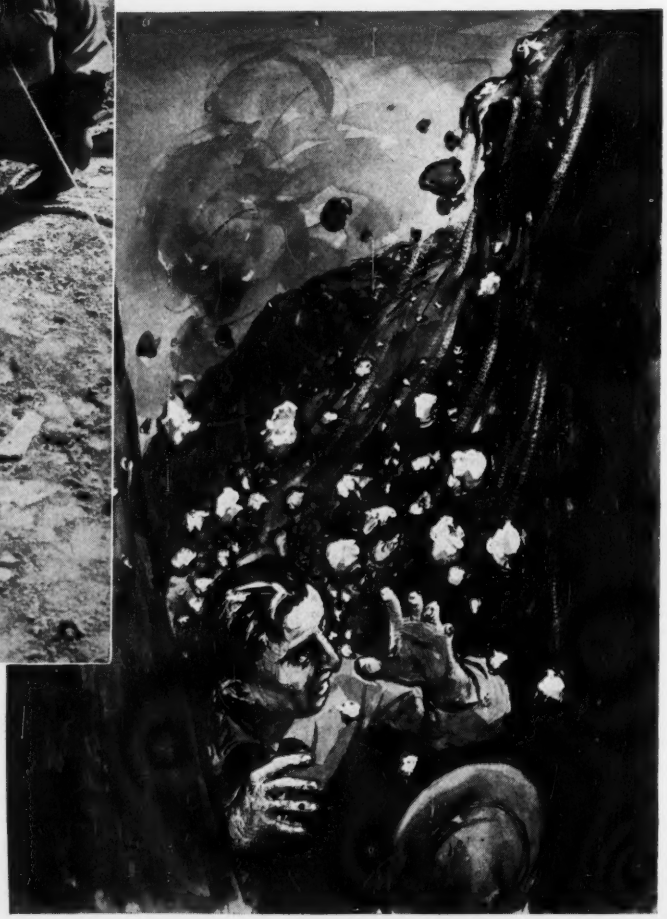
Colwell Heads SAE Technical Board

Appointment of A. T. Colwell of Cleveland, Ohio, as 1947 chairman of the SAE Technical Board has been announced by General Manager John A. C. Warner of the Society of Automotive Engineers. Mr Colwell, who is past president of SAE and vice president of Thompson Products, succeeds J. M. Crawford of General Motors Corporation, who becomes a member of the Board for three years.

The SAE Technical Board, comprised of engineers from all types of automotive industries, supervises the Society's technical committee activities

Trapped by Carelessness!

Courtesy Safety Bulletin (Bureau of Employees' Compensation)



Timber bracing (above) could have prevented this cave-in! The American Standard Safety Code for Building Construction calls for adequate shoring for trench sides 4 feet or more in depth if not sloped to the angle of repose.

Highway Traffic Committee Acts to Resume Program

AT the first meeting it has held since before the war, the Highway Traffic Standards Committee of the American Standards Association on May 14 took action to reorganize in preparation for again taking up work on standards problems connected with the movement of traffic on the highways. A nominating committee will name the candidates for a new chairman and vice-chairman and executive committee.

The Highway Traffic Standards Committee is one of the correlating committees in special fields to which the Standards Council has delegated authority to initiate standards, approve personnel of sectional committees, assign sponsorships, and approve American Standards. These committees sparkplug the work of the technical committees in their fields.

The correlating committee in the highway field was organized in 1938 after the Safety Code Correlating Committee found that increasing interest in standards for control of highway traffic was bringing problems to it that it did not feel qualified to handle. Activities of the committee were suspended during the war due to shortages of materials which curtailed highway construction and installations, and changed conditions generally as a result of the war needs. Recently, the renewed activity in the highway traffic safety field, highlighted by the President's Conference on Highway Safety late last year, has emphasized the need for standardization and the service which can be obtained through the procedure of the American Standards Association.

Five standards under the jurisdiction of the committee are now approved:

- Manual on Uniform Traffic Control Devices for Streets and Highways, D6-1935 (completed before organization of the correlating committee)
- Inspection Requirements for Motor Vehicles, D7.1-1941
- Railroad-Highway Grade Crossing Protection, D8.1-1943
- Adjustable Face Traffic Control Signal Head Standards, D10.1-1942
- Pre-Timed, Fixed Cycle, Traffic Signal Controllers, D11.1-1943

At the May 14 meeting, the committee reviewed these standards and recommended that the sponsor organizations renew the work of the sectional committees in order that they can determine whether the standards are still up to date or whether they should be revised.

Adoption of Inspection Requirements Interests State Legislatures

Particular attention was called to the recent interest on the part of state legislatures in inspection requirements for motor vehicles. Bills calling for the legal adoption of inspection requirements have been introduced in 44 states, it was reported. A great deal of research is being done at the present time on brake performance, which will be available to the sectional committee on inspection requirements when it takes up a study of the inspection standard. Approval of a revision of the *Manual on Uniform Traffic Control Devices* is now under consideration by the sponsor organizations, the American Association of State Highway Officials, the Institute of Traffic Engineers, and the National Conference on Street and Highway Safety. The revision was prepared by the Joint Committee on Uniform Traffic Control Devices, made up of representatives of these three organizations. Although the conference on street and highway safety recently went out of existence, a small committee was set up which will represent it in any actions needed to complete the standard.

The National Conservation Bureau, as sponsor for the American Standard Safety Code for Safety Glass, Z26.1-1938, has requested the American Standards Association to consider the organization of a sectional committee to study the protection of passengers from imprisonment in wrecked or overturned motor vehicles. This standard has been under the jurisdiction of the Safety Code Correlating Committee and has been referred to the Highway Traffic Standards Committee because the SCCC felt that the problem was one which could better be handled by organizations in the highway traffic field. This might involve the design and size of windows, and possibly special provisions for emergency escape hatches. The Society of Automotive Engineers is working with the Interstate Commerce Commission to compile information about this question, which it hopes to have ready for the June meetings of the President's Conference on Highway Safety. The Highway Traffic Standards Committee, therefore, postponed action on the Bureau's request until after the SAE has gone into the question more fully.

The members of the Highway Traffic Standards Committee are reviewing the membership of the committee to determine whether other organizations should be invited.

A. Devaney, Inc, N. Y.

Connecticut Building Code Refers to American Standards

The first state Building code of Connecticut, prepared by the State Housing Authority, has been published for voluntary adoption by the governments of Connecticut communities.

The new code provides the state's cities and towns with a ready-made, up-to-date set of building regulations which utilize references to American Standards as well as nationally accepted standards of other organizations.

When the code is adopted by a city or town, it will be kept current through the revisions of the standards to which it refers.

News from other countries

The Russian Standards Program

All-Union Standards Committee has high standing as part of the Council of Ministers of USSR; 7500 standards for wide range of fields are now in use

AFTER an absence of almost ten years, Russian standards are again being circulated to the American Standards Association and may be consulted in the ASA Library. More than 200 standards, covering a wide range of subjects from wire nails and portland cement to senna leaves, have just been received. Included also is the latest index (1946) to USSR standards which indicates that at the beginning of 1946 there were about 7,500 All-Union Government Standards actively in use in the USSR, not counting several thousands of departmental or factory standards.

Standardization Started in 1923 With Creation of Temporary Bureau

Scientific standardization in Russia started a little more than 20 years ago when a Temporary Standardizing Bureau was created in 1923 by the Soviet Government. This Temporary Bureau made a thorough survey of all local standards which existed in various factories in Russia, studied various standardizing systems abroad, and, after two years of preliminary work, was ready to start Soviet standardization. Thus, on September 15, 1925, the Council of People's Commissars of the USSR approved the first constitution of the Standards Committee at the Council of Labor and Defense and of the Central Bureau of Standards at the People's Commissariat of Workmen and Peasants' Inspection.

Two years later it was found necessary to reorganize and unify the work of those two standardizing bodies and on July 21, 1927 a new constitution was approved for the Standards Committee of the Council for Labor and Defense. Under its provisions the Central Bureau became the secretariat responsible for all technical routine work including the supervision of the activity of local technical committees, and the preparation of final drafts of standards to be submitted to the Standards Committee of the Council for Labor and Defense for approval and publication as All-Union compulsory or recommended standards.

The percentage of recommended standards was so small that it would not be a great mistake to say that practically all USSR standards were compulsory. In fact, by the end of 1929, the following characteristic warning appeared on many USSR standards:

> "Noncompliance with compulsory standards is punishable by imprisonment up to two years (Decree of the Central Executive Committee of USSR dated November 23, 1929, Article 128-b of the Criminal Code of RSFSR)"

The Standards Committee consisted of representatives of various People's Commissariats, including War and Navy, of delegates of allied autonomous republics, of central unions of cooperative producers and consumers societies (controlled by the government), and of the Union of Engineering Societies. All members were elected or delegated by their respective organizations but the governing board—the "Presidium" (chairman), vice-chairman, secretary, and four members—were appointed by the Council for Labor and Defense.

In 1940, the Standards Committee of the Council for Labor and Defense became the All-Union Standards Committee of the Council of People's Commissars of the USSR. When, in 1946, the Commissars became "Ministers," the All-Union Standards Committee became a part of the Council of Ministers.

Fifth Numbering System in Use

In the process of organizational change, five different classification, indexing, and numbering systems for standards were tried. The latest one—the fifth—was adopted in 1940. In this system, all standards receive a general prefix "GOST," where G stands for "Government," O stands for "All-Union," and ST stands for "Standard."

This prefix is followed by a number and an abbreviated designation of the year of approval or the latest revision. The identification and a printed designation of section, class, and group to which a given standard belongs, along with the name of the sponsor or the organization which initiated the standard, appear on the front cover of the document.

The numbering of GOST standards began with number 1 and, as of January 1946, had reached 3060, or a little less than 50 percent of all active standards. Consequently, the new index includes also all active standards which still bear one of the four former numbering systems.

An analysis of the subject classified index shows the following distri-

bution of standards per section which, to a certain extent, gives the picture of the USSR industrial activity:

Industry	*Percentage of standards*
Machine Manufacturing (Mechanical)	21
Textiles, Leather, and Other Light Industry	13
Chemical Industry	10
Agricultural Products, including medicinal herbs, and raw furs but excluding machinery	9
Food Industry (dairy, meat, fish, products cooked, canned, preserved, fats, soaps, glycerine, glues, fruits, tea, bakery products, alcohol, wines, tobacco, etc)	9
Metallurgy	9
Energetics & Electrical Engineering	5
Defense & Aviation Industry	4
Building Industry	4
Miscellaneous & Interdepartmental Standards (systems of units and symbols, packing materials, household goods, office supplies, paper sizes, etc)	4
Wood Cellulose Industry	4
Mining Industry	2
Oil Industry	2
Instrument Manufacturing	2
Public Health	Less Than 1

Sovfoto

Twenty-one percent of the standards developed in the Soviet Union regulate machine building, emphasizing standardization of mechanical equipment.

Thus, about one-quarter of all USSR standards regulate the machine building industry. A closer examination of this group discloses that almost 1500 standards cover the mechanical field. Among them are standards on mechanical drawings, tolerances and fits, screw threads, plain and ball bearings, pipes, flanges and fittings, small tools, milling cutters, abrasives, and all kinds of agricultural machinery.

This emphasis on mechanical equipment well illustrates the Soviet tendency toward industrialization. For many years the slogan was "To overtake and to surpass America!" They found it not an easy task for industrialization depends primarily on mass production, and mass production, in turn, requires a thorough standardization of mechanical equipment.

The section on textiles, leather, and light industry contains over 900 standards covering finished and semi-finished textile and leather products, as well as tanned and dyed furs. (The latter, being a good export merchandise, were previously under the jurisdiction of the Commissariat for Foreign Trade.)

The chemical industry has also been thoroughly standardized. It has about 750 standards, 300 of which cover inorganic matter (gases, acids, alkalies, their derivatives, and reagents), and about 200 standards which cover organic chemical products, including organic pigments, varnishes, enamels, and plastic materials. Coke and tar products, gums, products of wood distillation, rubber, and asbestos take up the balance of the standards including a group of about 60 standards on defense war chemicals.

Among more than 600 food industry standards are such delicacies as Beluga Caviars and such poor man's fare as horse meat. Russia was famous for its preserves of natural products like mushrooms, wild berries, etc and so about 100 standards deal with these commodities. Being great eaters of bread (in normal times), the Russians have about 40 standards which deal with table bread alone. As for intoxicating beverages, the index shows only one standard for vodka and one for beer. Against these, there are about 25 for soft drinks.

Cereals (raw and processed), fresh fruits, berries, vegetables, and similar raw food products are covered by about 150 of the 600 standards included in the section on agricultural products. Other standards deal with many kinds of medicinal herbs, flowers, seeds and berries, raw animal pelts, and animal by-products.

Metallurgical standards numbering about 600 cover ferrous and nonferrous semifinished products, welded and seamless pipes and fittings, rolled, drawn structural steel, steel and iron castings, fastenings material, wire and wire ropes.

The section on energetics and electrical engineering, when fully developed, will cover the following classes: basic principles and symbols, thermo-engineering, hydro- and aero-engineering, electrical engineering, and electro-communications. At the present time, however, the bulk of the standards in this section pertains to electrical engineering.

About 300 standards classified under "Defense Industry" do not show a very thorough and systematic study in this wide field. Thus, class 1, "Aviation Engineering," contains standards dealing mostly with motor fastenings and pipe fittings; class 2, "Armament and Special Equipment," covers rammers, trench spades, field kitchens, and the like; and class 3, "Ammunition," lists standards on nomenclature of controlling and measuring devices for various types of

projectiles, percussion caps, and methods of their testing, etc. The balance of more than 150 standards covers certain ship building and ship equipment material like ship nails, bolts and pins, pipe fittings, flanges and valves, marine hardware, anchors, etc.

Ten Percent of Building Standards Still Reflect Wartime Conditions

About ten percent of the standards in the section on building industry still reflect wartime conditions referring directly to equipment of air-raid shelters. Other standards deal with building materials and building codes for private dwellings and public buildings. Glass for window panes and ceramic tiles are not included here. They constitute part of the section on silicates and ceramics which contains only two classes: glasses and china, and fireproof material.

All scientific and industrial instruments, such as thermometers, barometers, manometers, electric meters, photometers, etc are covered by the standards in the section entitled "Instrument Manufacturing."

The classification of various crude and refined oil products like benzine, gasoline, kerosene, ligroin, etc, as well as various greases and lubricants, are found in the section on oil.

Not much could be said about standardization in the mining industry. Seventy of the total 95 standards deal with specifications, tests, and analysis of various Russian hard and soft coals. The remaining 25 standards cover a few nonferrous rare ores like wolfram or molybdenum and various nonmetallic products like mica, graphite, and talcum.

Fraction of "Public Health" Standards Covers Actual Medical Preparations

The smallest section of the index contains 58 standards. Entitled, "Public Health," only ten of its standards actually cover medical preparations, such as vitamin tablets and concentrates. The rest deal with apothecary jars, absorbent cotton, surgical gauze, bandages, and a few common surgical instruments.

The last section to be mentioned here contains miscellaneous interdepartmental standards. Basic units of measurement, and general scientific and technical symbols have their standards in this section. A few elementary safety rules, paper, glass, and wooden and metal packing containers also are standardized here. Household goods, kitchen utensils, office equipment (except office furniture), and various forms of business letterheads, bills, memoranda, etc, which are used in all the innumerable Soviet government offices are manufactured, distributed, and used in accordance with the respective All-Union Government Standards contained in this section.

Ask International Work on Pipelines and Definitions

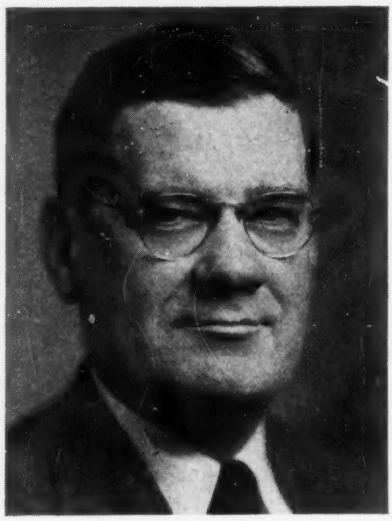
The Dutch standards body, Hoofdcommissie voor de Normalisatie in Nederland, has proposed to the International Organization for Standardization that consideration be given to the appointment of technical committees to deal with international standardization of pipelines for the petroleum industry and with general definitions for terms used in connection with chemical and physical tests.

International Uniformity Desired for Work in Petroleum Industry

International uniformity through the standardization of materials for pipelines and other fixed installations in the petroleum industry would be useful, according to the HCNN, in view of the international aspect of the work in this field. This proposal has been referred by the ASA to the Mechanical Standards Committee for recommendations and to the American Petroleum Institute for advice.

Because of the widespread use and significance of terms which express the concepts associated with chemical and physical tests, such as limits of accuracy, reproducibility, and kinds of errors, as well as the fact that different definitions appear in many standards, international agreement on this subject is necessary, the Dutch national standards body explained. The ASA has referred the proposal to the Board of Examination for recommendations and to the American Society for Testing Materials and the National Bureau of Standards for advice.

Townsend Heads Board of Review



J. R. Townsend

The new Board of Review which has been set up to help speed ASA work by relieving the Standards Council of a large part of the detail of approving standards and initiating projects had its first meeting May 15 and decided on the procedure to be followed for carrying out its assignment.

The Board also elected as its permanent chairman J. R. Townsend, materials engineer, Bell Telephone Laboratories, Inc, New York. The other members of the Board are:

Robert G. Griswold, president, Electric Advisers, Inc, New York, N. Y.

Arthur S. Johnson, assistant vice-president, American Mutual Liability Insurance Company, Boston, Mass.

E. B. Paxton, Standards Division, General Electric Company, Schenectady, N. Y.

George N. Thompson, chief, Division of Codes and Specifications, National Bureau of Standards, Washington, D. C.

W. C. Wagner, Philadelphia Electric Company, Philadelphia, Pa.

A detailed report of the way in which the Board will carry on its work will be given in July.

NOTE: In the May issue of INDUSTRIAL STANDARDIZATION, page 107, it was incorrectly stated that Robert G. Griswold was chairman of the Board. This was due to a misunderstanding since the Board itself elected its chairman at its first meeting.

New Standards from Other Countries

Standards from other countries may be borrowed by ASA Members.

Great Britain

New Standards Issued

Asphalt Tiles for Paving and Flooring, BS1324:1946
Beehives, Frames, and Wax Foundation, BS1300:1946
British Standard Lingerie Sizes, BS1338: 1946
Code of Practice Relating to Medical Gas Cylinders and Anaesthetic Apparatus, BS1319:1946
Domestic Gas Appliances, BS1250—Part 2:1946
Drawing Papers (Tracing, Detail, and Cartridge), BS1340/43:1946
Fire-Check Flush Doors, BS459—Part 3: 1946
Gas-Fired Boilers and Waste-Heat Boilers (With or Without Auxiliary Firing), BS1307:1946
General-Purpose Jointing Materials for Gas-Heated Domestic Appliances and Gas Installation Pipes in Buildings, BS1337: 1946
Humidity of the Air: Definitions, Formulae, and Constants, BS1339:1946
Hypodermic Syringes, BS1263:1946
Interim Report on Suggested Methods of Testing Finished Mouldings (Plastics), BS1330:1946
Knotting, BS1336:1946
Metal Lavatory Basins, BS1329:1946
Personal Stationery (Terms and Sizes), BS1360:1947
Pre-Formed Thermal Insulating Materials for Central Heating and Hot and Cold Water Supply Installations, BS1334:1947
Synthetic Resin (Aminoplastic) Moulding Materials and Mouldings, BS1322:1946
Women's Blouses, BS1345:1945

Revised Standards Issued

Hard-Drawn Copper Conductors for Overhead Transmission Purposes, BS125:1947
Manila Ropes for General Purposes, BS-431:1946
Nomenclature of Commercial Timbers (Including Botanical Names and Sources of Supply), BS881 & 589:1946
Sisal Ropes for General Purposes, BS908: 1946
Sluice Valves for Waterworks Purposes, BS1218:1946
Sockets for Wire Ropes for General Engineering Purposes, BS463:1946
Spot Welding for Light Assemblies in Mild Steel, BS1140:1946
Wood Windows: Double Hung Sashes With Cased and Solid Frames, BS644 (Part 2):1946

Foreign Language Standards

The standards listed below are available only in the language of the country from which they were received.

Austria

Clinker Tiles, Revision of, B3225, January 1947

Denmark

A-B-C Rules on Spelling, etc, DN377
B-Pressure Coupling for Fire Hoses (75 mm), DN381
Bearing Flanges for Electrical Machines, DNF375
Building Code: Maximum Load Prescriptions, DN410
C-Pressure Coupling for Fire Hoses (52 mm), DN382
Canned Vegetables, Net Content: Content of Dry Matter, DN370
Certificate Concerning Tests of Welded Pipes, DN320-Supplement B
Certificate Concerning Welded Joints, DN 320-Supplement A
Countersunk-Head Rivets for Steel Constructions and Boiler Work, DN385
Cylindrical Shaft Ends for Machines and Apparatus, DN372
Insulated Electric Water Heater, DN387
Interchangeable Electric Heating Plate, DN376 (Sheets 1 and 2)
Lighting in Workrooms, etc, DN700
Marking of Electrical Welding Aggregates, DN380
Mineral Oils & Greases:
- Determination of Carbon Residue, DN347
- Determination of Flashpoint, DN345
- Determination of Sulfur Content by Lamp Method, DN346

Regulations for Welded Steam Boilers and Other Containers Under Pressure: Design and Construction, DN320 (Sheet 1)
Regulations for Welded Steam Boilers and Other Containers Under Pressure: Tests, DN320 (Sheet 2)
Round-Head Rivets for Boiler Work, DN384
Round-Head Rivets for Steel Constructions, DN383
Round-Top Countersunk-Head Rivets for Steel Constructions and Boiler Work, DN386
Short Tapered Shaft End for Machines and Apparatus, DN374
Sizes of Printed Text and Pictures in Periodicals, Books, Catalogues, etc, on Sizes of A4 and A5 Paper, DN379
Standard Tapered Shaft End for Machines and Apparatus, DN373
Standard Glazed Clay Pipes, DN402
Stone and Gravel for Road Building, DN 401
Technical Drawings: Symbols for Electrical Housewiring, DN116
Technical Drawings: Symbols for Mechanical Engineering—Threads, Nuts, Screws, DN56
Technical Drawings: Symbols for Welded Joints, DN109
Unglazed Clay Pipes (Drain Pipes), DN403

France

Aeronautics—
- Dimensions of Indicating Instruments with Round Dials, L400-01.1
- Dimensions of Indicating Instruments with Dials, Masks, Needles, and Glasses, L400-01.2
- Electric Cable for Inside Wiring, L140-55
- Instrument Control Knobs, L400-01.4

Agricultural Equipment—
- Threshing Material: Ejector Tubing, U33-202

France—Continued

Agricultural Products—
- Castor Beans, V25-007
- Coffee, V25-004
- Cotton Fibres, V25-009
- Karite Almonds, V25-008
- Palm Oil, V25-002
- Palmetto Cabbage, V25-001

Chemistry—
- Rubber Conveyor Belts, T47-105
- Rubber Invalid Cushions, T47-122
- Rubber Nipples and Caps for Nursing Bottles, T47-120
- Rubber Test: Abrasive Test, T46-012
- Rubber Test: Adherence Test, T46-008
- Rubber Test: Artificial Aging, T46-004
- Rubber Test: Breaking Test, T46-007
- Rubber Test: Deformation Test Under Compression, T46-011
- Rubber Test: Deformation Test Under Constant Elongation, T46-009
- Rubber Test: Deformation Test Under Constant Force, T46-010
- Rubber Test with Air Bomb, T46-006
- Rubber Tubing for Autogenous Welding and Compressors, T47-111
- Saponification Value of Petroleum Oils and Greases, T60-110
- Solid Rubber Tires for Metal Demountable Wheels, T47-005
- Solid Rubber Tires of Diameters Up to 600 mm, T47-004

Civil Engineering—
- Aggregates for Concrete, P18-304
- Architectural Drawing Symbols and Color Code for Piping, P02-009
- Architectural Drawing Symbols for Representation of Piping in the Walls, P02-013
- Details of Wooden Framework Joints, Series 32/51, P23-419
- Details of Wooden Framework Joints, Series 37/51, P23-420
- Flat Steel Bands, P20-404
- Glass Panes, P78-401
- Glazed Panel, 90 x 205 cm, P23-451
- Interior Glazed Doors, Series 32-37-42, P23-456
- Interior Glazed Doors, Without Inner Mountings, Series 32-37-42, P23-457
- Non-Galvanized Corrugated Metal Sheets, P20-406
- Square and Half-Round Bars and Hand-Rails, P27-403
- Structural Sections in Building Constructions, P20-403
- Tiles, P31-301
- Various Architectural Drawing Symbols, P02-014

Domestic Economy—
- Bracket for Wash Basin, D11-110
- Ceramic Bidet, D11-107
- Ceramic Sinks, D11-102
- Ceramic Sinks with Drainboard, D11-103
- Ceramic Taps for Bidet, D18-105
- Ceramic Toilet Bowl, D11-105
- Ceramic Toilet Bowl, Syphon Type, D11-106
- Cupboards for Tableware, D87-104
- Horizontal Filing Cabinet, D65-609
- Office Desks, D67-604
- Toilet Bowl Seat, D11-109
- Typist's Tables, D67-605
- Vertical Filing Cabinet, D65-610
- Wash Basin for Office, D11-104

General—
- Principal American and British Units of Measurement, X02-050

Marine Construction—
- Beds, Military Type or for Emigrants, J35-304
- Fastening Fixture for Military Type Beds, J35-305
- Fastening Fixture for Passengers' Couches, J35-306

France—Continued

Marine Construction—Continued

Standard Couches and Beds for Passengers and Officers, J35-303

Mechanical Engineering—

Diagram of Recommended First, Second, and Third Choice of ISA Tolerances, E02-052

ISA Tolerance System for Nominal Dimensions From 1 to 500 mm, Guide for Choosing Tolerance, E02-051

Metallurgy—

Chemical Analysis of Iron and Silicon Alloys, A06-202

Chemical Analysis of Steel and Castings for Copper Content, A06-306

Chemical Analysis of Steel and Castings for Sulfur Content, A06-304

Hot-Rolled Foundry Products: Bulb Angles, A45-102

Hot-Rolled Foundry Products: Special Sections for Conveyor Belts, A45-750

Hot-Rolled Foundry Products: Special Sections for Railroad Car Building, A45-254

Hot-Rolled Foundry Products: Wires of Various Cross-Sections, A45-051

Non-Ferrous Products: Lead Sheets and Bands, A55-405

Physico-Chemical Tests of Foundry Products, A05-101

Packing and Transportation—

Heavy Cylindrical Drums from 210 to 225 l Capacity, H31-002

Wooden Cases and Crates for Textiles, H20-003

Paper and Cardboard—

Terminology of Paper, Q01-001

Wood, Glass, Ceramics—

Common Wooden Step Ladders, B55-005

Physical and Mechanical Characteristics of Wood, B51-002

Protective Glasses, B36-007

Technological and Chemical Characteristics of Wood, B51-001

Test of Safety Glass, B32-504

Hungary

The ASA Library recently received 303 Hungarian Standards, some of which date back as far as 1934. The majority of them, however, were approved during the war years of 1941, 1942, and 1943. Among the many subjects covered are such topics as technical drawings; ceramic tiles; copper, bronze, and aluminum wires for electric lines; various steel sections; non-ferrous sheet metals; pigments; x-ray equipment; lubricating oils; surgical supplies; school and office supplies; and electric fuses.

Italy

Since more than 500 Italian Standards have been received, they have been condensed into the following subject groupings:

Automotive Industry (Storage Batteries, Ignition Cables, Springs, etc), 1650-1693

Bases, Pins, Rollers, Bushings for Open Marine Chocks, 1395-1404

Dials for Various Airplane Indicating Instruments, 1541-1558

Forged Steel Products, 1755-1764

ISA Tolerance System for Mechanical Work, 1530-1535

Marine Fair Leads, 1357-1394

Marine Pipe Flanges, Light Series, Steel Malleable Iron and Bronze, Cast-, Welding-, Screwed-, and Lapped-Types, with and without Necks, 1609-1649

Metal Conduits for Fluids on Airplanes, 1765

Non-Ferrous Metals, Ingots and Castings, 1694-1705

Orifices Diaphragms and Rules and Formulas for Flow Measurement, 1559-1605

Pins, Studs, Nuts, Washers, Unfinished and Finished, 1706-1754

Seamless Steel and Copper Pipes for Light and Heavy Marine Pipelines, 1455-1473

Solid and Hollow Bricks, Types, Dimensions, Specifications for and Testing of, 1606-1608

Square Tool Shanks and Their Gages, 1536-1538

Steel Wires and Wire Ropes, 1474-1529

Various Types of Hand Operated Transmissions in Marine Tele-communication System, 1766-1857

Sweden

New Standards Issued

Blades for Hand Hack-Saws, SMS1332

Blades for Power Hack-Saws, SMS1333

End-Mill Spindle with 1¾ Inch Cone Socket, Short Type, SMS 902; with 1¾ Inch Cone Socket, Long Type, SMS 903; with 2¾ Inch Cone Socket, Short Type, SMS 904; with 2¾ Inch Cone Socket, Long Type, SMS905

Oils and Fats—

Determination of Ash Content, SIS150206

Determination of Density (Specific Gravity), SIS150201

Determination of Dropping Point in the Ubbelohde Apparatus, SIS150210

Determination of Emulsifying Number, SIS150212

Determination of Flash Point, SIS150202

Determination of Neutralization Number, SIS150203

Determination of Penetration of Greases and Vaselines, SIS150211

Determination of Solid Foreign Substances, SIS150207

Determination of Water Contents by Distillation with Xyol or Benzine, SIS-150208

Sampling, SIS150101

Petri Dishes, CSB178

Radii for Various Curvatures, SMS1370

Short Stem Funnels, CSB175

Standard Paper Sizes, General, SIS735001

Test Tubes, Type A, CSB173

Windows and French Windows, Types and Dimensions, SIS608605

BSI Work Held In Cold Storage

Reports received from the British Standards Institution during the severe winter storms told of some of the problems of developing standards under the conditions then prevailing in London. Technical committees, as well as the BSI staff, carried on their work by the light of candles or oil lamps, and in overcoats. The *Standards Review*, which had been due for publication in January, was being held in type because at that time the printing of periodicals was banned. Printing plants were closed temporarily due to lack of electricity.

Carbon Tetrachloride Standard Awaits Further Research

The Sectional Committee on Maximum Allowable Concentrations of Toxic Dusts and Gases, Z37, has recognized the wide public interest in a maximum allowable concentration for carbon tetrachloride. Since the Z37 committee is not in a position to issue such a standard at the present time, it has authorized the preparation of a statement concerning the present status of this subject.

Work on Proposed Standard Delayed By Differences of Opinion

Work on carbon tetrachloride was started by the Z37 committee as a result of its meeting of June 14, 1940. A special subcommittee was formed to study this subject and the sectional committee gave consideration to reports of the subcommittee and other pertinent information at each meeting from then until November 20, 1945. There had been sincere differences of opinion among the members which could not be resolved at these meetings. Some believed that the maximum allowable concentration should be set at 100 parts per million, basing the decision on present reports in the literature, which would indicate that such a maximum concentration would prevent any reasonable chance of systemic poisoning. Other members of the committee believed that 100 ppm was too high. This was based upon reports of use of carbon tetrachloride, which would indicate that lower concentrations, possibly as low as 50 ppm, had caused nausea and vomiting, resulting in interruption of employment. Also, they are not convinced that some systemic poisoning may not be caused by concentrations of 100 ppm.

Further Data or Research Needed Before Committee Can Progress

Because of the differences of opinion at the meeting November 20 the committee agreed to hold the proposed standard on carbon tetrachloride in abeyance until further data or research could be made available, which would provide facts upon which to resolve the difference of opinion. Efforts are now being made to encourage research on this subject.

Book  Marks

American Railway Engineering Association. Bulletin 465 (American Railway Engineering Association, 59 East Van Buren Street, Chicago 5, Illinois)

This is a compilation of reports of the committees on roadway and ballast, track, and rail concerning the work of their various subcommittees in revising the *AREA Manual* so that specifications and tests may be up-to-date.

Flameproofing of Textiles. By Marjorie W. Sandholzer (National Bureau of Standards, C455. Obtainable from U. S. Government Printing Office, Washington 25, D. C., 10¢)

Due to the large losses of life from rapid combustion of untreated materials during the past few years, there had been an increased interest in treatments that will reduce the flammability of cotton and rayon textiles. This present circular, issued by the National Bureau of Standards, includes a review of the principles of flameproofing, a brief history of researches, formulas for various processes, and an outline of testing methods and requirements for the treated material. For the treated or intrinsically slow-burning materials, a flame test with the fabric in vertical position is outlined. A method for determining the rate of burning in horizontal position is also defined, which is useful in indicating the relative flammability of untreated textiles.

Heating, Ventilating, Air Conditioning Guide (American Society of Heating and Ventilating Engineers, 51 Madison Avenue, New York 10, $6.00)

This 25th edition of the *Guide* has been reviewed by a publications committee assisted by 50 practicing engineers and other authorities in the field. Important changes have been made wherever improvement could be effected either in presentation of material or in addition of useful data. Some of the 51 chapters have been completely rewritten, while others have been merely amplified or revised. Included are such section headings as human reaction to atmospheric environment, heating and cooling loads, combustion and consumption of fuels, heating systems and equipment, air conditioning, and installation and testing codes. Convenient reference to manufacturers' equipment is provided by the catalog data section showing the products of 240 firms. This section is complete with a convenient list of manufacturers' names and addresses and a cross-index of products available.

Introduction to Mathematical Statistics. By Paul G. Hoel (John Wiley and Sons, Inc, New York, N. Y., $3.50)

This volume is another of the books in the Wiley Mathematical Statistics Series, edited by Walter A. Shewhart. It will be of interest to those dealing with problems involving the statistical approach to quality control. Among the topics covered is sampling inspection, including large-sample and small-sample methods.

NEMA Job Rating Manual; Guide for Use of NEMA Job Rating Manual (Industrial Relations Department, National Electrical Manufacturers Association, 155 East 44th Street, New York 17)

In everyday language, the *Manual* explains the fundamental policies of job rating, the primary purpose of which should be to rate jobs, not workers. Individual human differences and abilities should not be reflected at this point. Defining a "job" as a recognized collection of duties assigned to an individual employee to perform, while a job "grade" is a symbol expressing the relative value of a specific job with respect to other rated jobs, the NEMA Job Rating Plan declares that the relative value of a job is considered to depend on 11 factors, each of which varies in degree. These factors are explained in terms of what they measure, and each of the five degrees of evaluation shows what is included under each one.

The *Guide* shows how the process of job rating as set forth in the *Manual* can be accomplished. It gives specific examples of the various steps which are necessary in using the plan. It includes a sample job description, 33 sample job grade substantiating data sheets, a chart showing the distribution of job titles correlated with score points, and a sample survey schedule for collecting area wage data.

Safety Equipment and Construction Requirements for School Buses (National Highway Users Conference, 938 National Press Building, Washington, D. C., $5.00)

The new, revised edition of this comprehensive book covering safety equipment and constructive requirements for school buses sets forth the complete laws and regulations, including all recent changes, governing school bus equipment in each of the 48 states. Included are the details of school bus standards as recommended by the National Council of Chief State School Officers. To insure accuracy, all factual data has been checked with the proper government officials in each state. It is pointed out that 14 states have enacted laws that now are in substantial compliance with the standards recommended by the National Council of Chief State School Officers. In addition, five other states have recommended adoption of these standards, and the standards are at present under consideration in 11 other states.

Standards on Glass and Glass Containers (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., $1.25)

Issued for the first time, this special compilation includes various standardized definitions, test methods, and specifications for glass developed in ASTM work primarily through the activities of Committee C-14 on Glass and Glass Products. Included in the book are methods for the chemical analysis of glass sand, and soda-lime glass; a standard procedure for flexure testing of glass; three methods covering glass containers; two specifications for pin-type lime-glass insulators with methods for testing these products; tests for glass spool insulators, glass yarn, and woven glass fabrics; the evaluation of glass tubular sleeving and braids; and the testing of woven glass tapes.

Symposium on Oil Procurement Practices (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., $1.00)

This symposium, held during the 1946 Annual Meeting, developed from a detailed study carried out in ASTM Committee D-2 relating to specifications and tests for lubricants. Christian Dantsizen, General Electric Company, describes the G-E program of purchasing petroleum oils, with the typical guides used by his company. C. L. Pope, Eastman Kodak, covers purchase specifications used by this company, with tentative specifications covering additive oils and details of some of the tests used. J. T. Hendren, Pan American Airways, Inc, discuses airline practices and stresses the need for more valid laboratory tests upon which specifications can be based. B. C. Voshell, Socony-Vacuum, details a recommended practice for purchasing lubricants, and J. P. Costello, U. S. Navy, describes the practices used by this branch of the Government. The practices used in an automobile plant are covered by J. L. McCloud, Ford Motor Company, who includes facsimiles of certain specifications. The general discussion section of the symposium includes comments by many leading technologists representing both the producing and consuming viewpoints.

Smith Named Chief Of NBS X-Ray Section

Dr Scott W. Smith, physicist, formerly with the Kelley-Koett Manufacturing Company, Covington, Kentucky, has been appointed chairman of the X-Ray Section of the National Bureau of Standards. He succeeds George Singer who died in January.

ASA Standards Activities

American Standards Approved

Shaft Couplings, Integrally Forged Flange Type for Hydro-Electric Units, B49.1-1947 (Revision of B49-1932)
Sponsor: American Society of Mechanical Engineers

Specifications for Soft or Annealed Copper Wire, ASTM B 3-45; ASA H4.1-1947 (Revision of ASTM B 3-41; ASA H4.1-1942)

Specifications for Tinned Soft or Annealed Copper Wire for Electrical Purposes, ASTM B 33-46; ASA H4.4-1947 (Revision of ASTM B 33-39; ASA H4.4-1940)

Specifications for Bronze Trolley Wire, ASTM B 9-46; ASA H4.5-1947 (Revision of ASTM B 9-39; ASA H4.5-1940)

Specifications for Copper Trolley Wire, ASTM B 47-46; ASA H4.6-1947 (Revision of ASTM B 47-39; ASA H4.6-1940)
Sponsor: American Society for Testing Materials

Standards Being Considered for Approval

Building Code Requirements for Steel Joist Construction, A87.1
Sponsors: American Iron and Steel Institute; American Society of Civil Engineers

Practice for Street and Highway Lighting, D12
Sponsor: Illuminating Engineering Society

Standards Being Considered for Reaffirmation

Manhole Frames and Covers for Subsurface Structures, A35.1-1941
Sponsors: American Society of Civil Engineers; ASA Telephone Group

Engineering and Scientific Charts for Lantern Slides, Z15.1-1932

Time-Series Charts, Manual of Design and Construction, Z15.2-1938

Engineering and Scientific Graphs for Publications, Z15.3-1943
Sponsor: American Society of Mechanical Engineers.

Standards Submitted for Approval

Machine Pins, B5.20
Sponsors: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses (Revision of ASTM A 120-44; ASA G8.7-1945)

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service (Revision of ASTM A 105-40; ASA G17.3-1940)

Steel for Bridges and Buildings (Revision of ASTM A 7-42; ASA G24.19-1942)

Carbon-Silicon Steel Plates of Ordinary Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels (Revision of ASTM A 201-44; ASA G31.1-1945)

Standards Submitted for Approval—Continued

Chrome-Manganese-Silicon (CMS) Alloy-Steel Plates for Boilers and Other Pressure Vessels (Revision of ASTM A 202-44; ASA G32.1-1945)

Molybdenum-Steel Plates for Boilers and Other Pressure Vessels (Revision of ASTM A 204-44; ASA G34.1-1945)

High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels (Plates 4½ in. and Under in Thickness) (Revision of ASTM A 212-44; ASA G35.1-1945)

Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service (Revision of ASTM A 182-44; ASA G37.1-1944)

Carbon- and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service (Revision of ASTM A 194-40; ASA G38.1-1942)

Structural Steel for Locomotives and Cars (Revision of ASTM A 113-42; ASA G39.1-1942)

Structural Silicon Steel (Revision of ASTM A 94-39; ASA G41.1-1942)

Forged or Rolled Steel Pipe Flanges for General Service (Revision of ASTM A 181-42; ASA G46.1-1942)
Proprietary Sponsor: American Society for Testing Materials

Standards Submitted for Approval—Continued

Textile Safety Code (Revision of L1-1929)
Sponsor: National Safety Council

Projects Discontinued

Specifications for Clean Bituminous Coal, M26

Specifications for Trolley, Storage Battery and Combination Type Locomotives for Coal Mines, M25

New Projects Initiated

Oxychloride Cement Flooring, A88

Preparation and Installation of Building Granite, A91

V-Belt and V-Belt Drives, B55

Colors for Industrial Apparatus and Equipment, Z55

New Project Being Considered

Steel Raceways for Electrical Wiring Systems

New Project Requested

Sound Recording (Requested by Research Council of the Academy of Motion Picture Arts and Sciences; The Institute of Radio Engineers; Society of Motion Picture Engineers)

News About ASA Projects

Acoustical Measurements and Terminology, Z24—

Sponsor: Acoustical Society of America.

Draft proposals for standards which will make it possible for laboratories to evaluate the performance of pressure microphones, earphones, telephone receivers, and hearing aid phones were considered at a meeting of Subcommittee B of Z24 on Fundamental Sound Measurement on May 9, 1947. It is expected that a draft for primary laboratory standard pressure microphones and method for their calibration will be submitted to letter ballot of the sectional committee within the next 60 days.

A joint meeting of Subcommittee A on Terminology and Subcommittee G on Underwater Sound Measurement was also held in May to discuss the establishment of reference levels for acoustical measurement in air, water, and solids. While the reference pressure level of .0002 dynes per square centimeter has been established for some time as the pressure reference level for measurements in air, it never has been widely accepted for measurement in other media. No agreement was reached, however, on one level for all media. It was decided as an interim measure that the pressure be used as the basic reference and that the actual value of the reference level be stated in all cases.

Cast-Iron Flanges and Flanged Fittings for Refrigerant Piping, Class 300, B16.16—

Sponsors: American Society of Mechanical Engineers; Heating, Piping and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry.

When recently the proposed American Standard, Cast-Iron Flanges and Flanged Fittings for Refrigerant Piping, Class 300, B16.16, was submitted to the ASA for final approval, the Air Conditioning and Refrigerating Machinery Association raised certain objections. The Mechanical Standards Committee of the ASA, after consideration of these objections, referred the matter to a subcommittee (J. R. Townsend, chairman) to advise the MSC on further action to be taken. This subcommittee held a meeting in New York on May 2 and reached complete agreement on the way in which the difficulties could be removed. Recommendations to this effect were made to the MSC. Accordingly, the submittal of a revised proposal is expected in the near future.

Domestic Electrical Equipment—

Sponsor: National Electrical Manufacturers Association.

Meetings of three sectional committees

working on proposed standards for domestic electric flatirons, household electric ranges, and electric water heaters were held in May. New draft standards are being prepared as a result of the decisions made at these meetings and it is expected that these will be circulated to the committees again for final action within three months. Performance, baking efficiency, and durability tests are being included in addition to technical requirements for wiring, safety, and nameplate markings.

Fire Protection and Fire Resistance, A51—

Sponsors: National Board of Fire Underwriters; National Fire Protection Association; National Bureau of Standards, U. S. Department of Commerce.

Meetings of four subcommittees and the sectional committee are scheduled for the week of June 23 at ASA headquarters in New York. The subcommittees on Height and Area Limitations, on Fire Resistance Ratings, on Interior Finishes, and on Classification of Occupancies will hold meetings on successive days, to consider draft standards. The sectional committee is to meet on June 27.

Grandstands, Tents, and Other Places of Outdoor Assembly, Z20—

Sponsors: Building Officials Conference of America, Inc; National Fire Protection Association.

A revision of the American Standard Safety Requirements for Grandstands, Tents, and Other Places of Outdoor Assembly, Z20.2-1946, is now out to letter ballot of the sectional committee. The revision is intended to modify a few of the provisions as a result of experience gained with the first edition during the past year.

Nomenclature of Milling Cutter Teeth, B5c1-1947—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers; National Machine Tool Builders' Association; Metal Cutting Tool Institute

This supplement to B5c-1930 covers names, descriptions, and definitions for milling cutter teeth, covering all the common types of milling cutters now in use. A section on the terms used in connection with speeds and feeds used in milling operations is also included. It will be ready in July for 70 cents.

Pressure Piping, B31.1b-1947 (Supplement to B31.1-1942)—

Sponsor: American Society of Mechanical Engineers

Supplement No. 2 of American Standard Code for Pressure Piping, B31.1-1942, embodies revisions and additions to the code resulting from suggestions and inquiries received since publication of Supplement No. 1 in November 1944. Substantially all sections of the code are affected by the changes contained in this supplement, which will be available next month for 60 cents.

Safety Code for the Construction, Care, and Use of Ladders, A14-1935—

Sponsor: American Society of Safety Engineers, Engineering Section, National Safety Council.

Members of the sectional committee are being asked for comments on the present edition of the safety code for ladders to determine whether a revision is needed.

Slotted and Recessed Head Screws, Machine, Cap, Wood, Tapping and Slotted Headless Types, B18.6-1947—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

This standard, replacing American Standard Slotted Head Proportions, B18c-1930, is greatly expanded from the 1930 issue. It now covers machine screws in the range of sizes 0 to ¾ in. and includes hexagon head, as well as several new head types, truss head, binding head, and pan head. The more common round head, flat head, oval head, and fillister heads are also included. Other completely new material includes dimensions for recessed head, tapping screws, and headless set screws. It is expected that this standard will be available by the middle of July, price $1.00.

Socket Head Cap Screws and Socket Set Screws, B18.3-1947—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

The new revision covers head and body dimensions of socket head cap screws, socket head shoulder screws (stripper bolts), and socket set screws. Dimensions for both hexagonal and fluted type sockets are included. The range of sizes of socket head cap screws has been extended and now covers No. 2 through 1½ in. The price of this American Standard is 60 cents, and it is expected that it will be available next month.

Sound Recording—

On May 12, 1947, a meeting was held under ASA auspices at the request of the Research Council of the Academy of Motion Picture Arts and Sciences, the Institute of Radio Engineers, and the Society of Motion Picture Engineers to consider initiation of a project in the broad field of sound recording. Since this conference was held, the Radio Manufacturers Association has also requested that such a program be undertaken. Heretofore, various isolated groups such as the Radio Manufacturers Association and the National Association of Broadcasters have attempted to set up standards which would insure electrical and mechanical interchangeability of disc and transcription recordings. The Society of Motion Picture Engineers and the Research Council of the Academy of Motion Picture Arts and Sciences have also done some work along this line for sound on film recording. No one, however, has established to date any nationally accepted standards for magnetic recording. With the advent of this new medium, in which the motion picture industry, the broadcasters, and the manufacturers of home phonographs are interested, the need is urgently felt for standard dimensions, speeds, etc, for this type of recording. It is hoped that this new sectional committee being set up under ASA procedure will coordinate the work in all of these various fields.

Specifications and Methods of Test for Safety Glass, Z26—

Sponsors: National Bureau of Standards, U. S. Department of Commerce; National Conservation Bureau.

In anticipation of a revision of the 1938 edition of the American Standard for safety glass used in motor vehicles, the personnel of the sectional committee has been brought up to date. The committee and the sponsor organizations have recommended that the scope of the project be broadened to include all safety glazing materials and to exclude goggles. The revised scope that has been submitted for approval by the Safety Code Correlating Committee is as follows:

Specifications and methods of test for safety glazing material (glazing material designed to promote safety and to reduce or minimize the likelihood of personal injury from flying glazing material when the glazing material is broken) as used for all purposes, including windshields and windows of motor vehicles, motorboats and aircraft; and bullet-proof windows and partitions.

Verne Zimmer

The American Standards Association regretfully announces the passing of Verne Zimmer, director of the Division of Labor of the United States Department of Labor.

Mr Zimmer will be greatly missed by members of the Association, as he was closely connected with the work of the ASA and did much to promote the knowledge of American Safety Standards, particularly with state regulatory bodies.

Mr Zimmer began his career in the labor field as a factory inspector for the New York Department of Labor. During his 21 years of service in New York, he held such other positions as superintendent in the Public Employment Service, examiner in charge of the United States Employment Service, assistant industrial commissioner of the State, and director of the Workmen's Compensation Service.

In 1934 he became director of the Division of Labor Standards in the United States Department of Labor. He was also director of the United States Employment Service for a time.

Six in

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